

University of Alberta

The Acquisition of Motion Event Descriptions in L2 Spanish

by



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of the requirement for the degree of Doctor of Philosophy

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Abstract

The present study is a cross-sectional investigation into the acquisition of the conceptual framework underlying the description of motion events in Spanish. Motion is a category of human cognition which is expressed differently in English and in Spanish, making motion an interesting area of investigation in a study of the acquisition of Spanish by English speakers. While English speakers tend to use manner verbs in sentences for specific descriptions of motion (e.g., *run*), Spanish speakers tend to use path verbs in sentences for less specific descriptions of motion (e.g., *go*). The participants for this study were sixty English speakers studying Spanish at three levels of proficiency (beginner, intermediate, advanced) and a group of twenty native speakers of Spanish. The English speakers were tested for their preferences in written motion descriptions in Spanish and English (the receptive task). They were also tested for their use of motion verbs in spontaneous connected speech (the production task), also in Spanish and English. Results showed that, in the receptive task, all English-speaking learners chose higher percentages of manner than path descriptions in English, but only the advanced learners showed a preference for higher percentages of path descriptions in Spanish compared with manner descriptions. In the production task, all learners talked about motion using higher percentages of path verbs. However, highest token frequencies revealed important differences in the way learners talked about motion in Spanish. For example, the advanced learners, like the Spanish native speakers, favoured an *exiting-going-*

returning verb sequence. By contrast, the beginner and intermediate learners produced a more English-like verb sequence of *going-coming*, without any reference to motion in relation to a bounded area. The study demonstrated that the acquisition of motion event descriptions was a slow process in which the beginners as well as the intermediate learners relied on first-language knowledge in the receptive and production tasks in Spanish, their second language. It was only after extensive exposure to the second language, higher levels of proficiency, and numerous instances of thinking and speaking in Spanish that the advanced learners conceptualized and expressed motion in ways which resembled more the target-language.

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Chapter 1: Statement of the problem

1.1 Introduction

Basic to human cognition is a universal conceptual system which underlies crosslinguistic diversity (Talmy, 1988). Thus, human interaction is driven by the exchange of conceptual categories which become differentially lexicalized at the sentence level. In this sense, the grammar of a language provides speakers with their own patterns to structure the form-meaning mappings through which the conceptual information is conveyed. The fact that each language offers speakers their own array of grammaticized options gives rise to crosslinguistic differences as speakers tend to convey the concepts through different parts of speech and alternate lexicalization and grammaticization strategies (Swan, 1997). It is also possible to consider that variations in the way concepts are conveyed may indicate that speakers of different languages may not conceive of or perceive the same aspects of meaning. Even further, the differences in perception entail that speakers of two unrelated languages probably do not represent exactly the same concept using similar mental images. How do speakers acquire this universal conceptual system? When do they learn to construe messages for a linguistic exchange of concepts?

From an early age, the linguistic input of a speech community offers children the conceptual material for human cognition and interaction. Through prolonged contact, children discover the notions to function linguistically in the first language (Bowerman, 1989). Children receive and process multiple examples of language use which guide them to attend to certain properties of objects and events that match some conceptualization of the same and which are readily encodable in the language (Slobin, 1991, 1996). Recent typological investigations have provided empirical evidence which shows that language-specific patterns influence the child from the beginning for the acquisition of conceptual categories. Moreover, this same evidence has shown that learning words in context provides information about the concepts by a process of induction across instances of use (Brown, 2001: 563; de León, 2001).

Slobin (1991, p. 23) describes this contact of children and their first language as some form of *training* which encompasses both the linguistic and the cognitive domains. Likewise, he argues that the effect of first language training is such that it is exceptionally resistant to alteration in adult second language acquisition. Specifically, adult speakers tend to approach a new language relying on their native-language-processing strategies rather than depending upon signals in the language input as children do (Doughty, 2003). Does this mean that adult learners could not remodel the way they conceptualize notions to cognize them in a way appropriate to the second language?

Studies from a *language-oriented* approach have focused attention on how motion, a concept which has a universal, kinaesthetic basis (Cadierno & Lund, 2004), is reflected in the grammar of a language. Drawing on Leonard Talmy's (1985, 1991, 2000) typological classification, researchers have described the way languages from different typological families lexicalize motion and a Co-event (manner or cause), motion and path, and motion and figure. In this vein, English and Spanish have been the source of numerous studies as they are purported to represent different language typologies. Findings in oral production indicate that, although the two languages overlap in some lexicalization patterns, their main trends differ. English speakers tend to lexicalize the manner in the main verb (e.g., *run*, *fly*) in order to focus on the internal mechanism of motion; whereas Spanish speakers tend to lexicalize the path in the main verb (e.g., *ir* 'go', *entrar* 'enter') to focus on more general descriptions of motion. Under the assumption that crosslinguistic differences may indicate perception of different aspects of the same event, researchers have designed tasks in which speakers have been asked to look at a wide range of animate and inanimate objects and talk about the way they move in space. Few studies, however, have considered the lexicalization of motion in written production and in the receptive mode in English and in Spanish. The bulk of studies have analyzed the crosslinguistic differences of monolingual speakers, but only few studies have considered proficient bilingual speakers.

1.2 Purpose of the study

The present study aims at adding to the thus-far limited evidence in bilingual speakers of English as first language (L1) and who are learners of Spanish as a second language (L2) in a traditional language program. More specifically, the study attempts to determine when and how in the course of acquisition, learners achieve the target-lexicalization pattern to convey motion in Spanish as a second language. The cross-sectional design of the study facilitates the observation of learners performing at different levels of mastery in the second language. The study considers measurements at the receptive level and in oral production in L2 Spanish as well as in English. The inclusion of a receptive measure responds to the idea of exploring learners' preference for path or manner verbs presented in written motion descriptions. The production measure aims at observing how learners lexicalize motion in spontaneous oral discourse.

1.3 Justification of the study

The few studies available on motion descriptions in L2 Spanish have shown that bilingual speakers with English as a first language could describe the path of motion in oral production almost indistinguishably from native speakers (Navarro & Nicoladis, 2004). These results have been interpreted in favour of the possibility that second language speakers could in fact talk about a concept like motion in ways which resemble the target language. Moreover, this evidence indicates that, contrary to Slobin (1991), adult speakers seem to be able to overcome the exceptionally resistant entrenchment imposed by the first language and achieve the patterns for the expression of a concept in a second language. However, there is still a lack of information regarding the process that leads to the target lexicalization pattern becoming ingrained. More specifically, there appear to be no studies which have incorporated learners of Spanish as a second language, at different levels of proficiency, to demonstrate empirically how and when in the course of acquisition, learners begin to understand and produce path of motion predicates. Likewise, there

seems to be no evidence which indicates the effect that learning to verbalize motion in a second language could have on the way bilingual speakers mentally represent the concept, or the extent to which a new form of mental representation indicates that learners can think in the target language.

Chapter 2: Review of the Literature and Statement of Hypotheses

2.1 Learning a second language in the classroom

In North America, a classroom is the environment where learning of a second language usually takes place. This is even more evident for those learners who live in areas where access to an L2 is limited (Krashen, 1982; Pienemann, 1989; Wong-Fillmore, 1985). Nowadays, there is consensus regarding the positive effects that language instruction can have on the numerous learners who enrol in language programs (Doughty, 2003; Long, 1983b, 1988). In addition, advances in technology and communication have gradually opened up the possibility that language learners complement the L2 input they receive from the language teachers by reading or listening to information that is available in various electronic forms (Gonglewski, 1999; Logan, 2000; Simonson, Smaldino, Albright, & Zvacek, 2000; Warschauer, 1995). Watching and listening to native speakers spontaneously interacting or reading materials in the target language offer learners rich L2 input with all sorts of idioms, expressions, and linguistic subtleties. However, this non-guided experience tends to be more beneficial for those learners who have already achieved some knowledge of the second language. The reason is that in non-guided exposure to L2 input, learners may receive linguistic material for which they are not yet developmentally prepared (Krashen, 1985; Pienemann, 1989); therefore, the input is incomprehensible and perceived only as "noise" (Krashen, 1982; Long, 1983a, 1996). In this sense, the language classroom appears as a safe environment because exposure to the linguistic input is, for the most part, monitored in order to ensure a careful and graded introduction to the grammatical properties of the second language (R. Ellis, 1981, p. 74). This same idea has led some to conclude that explicit instruction is more advantageous than implicit L2 learning (Doughty, 2003; Norris & Ortega, 2000). In the context of this study, L2 input should be understood as any example of second language, oral or written, that a learner receives inside or outside an instructional environment. Inside the classroom, the primary source of input is the teacher whose speech is usually adjusted to assure an intelligible interaction with the learners (R.

Ellis, 1994a). Two additional sources of input are the teaching materials and the interaction between the learners themselves. In the case of Spanish, the interest for learning this language has been on the rise in North America with more educational institutions offering various language programs. Access to Spanish outside the L2 classroom has also increased as the amount of audio-graphic information available in a variety of forms has proliferated rapidly in recent years.

2.2 Teacher talk

There is evidence confirming that teachers not only control most of the interventions in class, but also they tend to change their form of speaking when addressing students. That is, the language they produce in class is a rather simple form of second language (Gremmo, Holec & Riley, 1978). It is even possible that teachers would not naturally produce this kind of language when addressing other language instructors or native speakers of the target language. The kind of speech that teachers use in class is known as *teacher talk*, and it seems to originate in the desire to communicate in a comprehensible manner as well as eliciting predetermined responses from the learners (Long & Sato, 1983). Observations collected in different studies have identified a series of semantic, syntactic, and phonological adaptations of teacher talk that render a modified kind of L2 input (Chaudron, 1988; R. Ellis, 1994a; Wong-Fillmore, 1985). According to R. Ellis (1994a), there is not an exact idea of what defines the optimal teacher talk; however, it has been described as being syntactically simpler with fewer complex structures; the sentence patterns are mostly declaratives and statements rather than questions; lexical items and constructions tend to be repeated and some of them are paraphrased to add variation; the length of pauses tends to be longer and the rate of speech slower (particularly with beginner level students); the ratio of type-tokens tends to be lower, but it varies with the students' level of proficiency (Chaudron, 1988; Parker & Chaudron, 1987; Wong-Fillmore, 1985, p. 50).

In contrast to the view of teacher talk as a somewhat weak and constrained form of L2 input, Edmondson (1985) noted that there is a positive aspect to it. He indicated that teacher talk or *classroom talk* (using his own terminology) is an inevitable reality in any environment that involves the use of talk with the purpose of learning. Even more, this modified style of discourse may be extensively used as a learning facilitator in the classroom. Edmondson affirmed that, in reality, teachers and learners make serious attempts to overcome the stereotypical teaching discourse that the classroom imposes by engaging in more communicative activities. Teachers and learners become more effective users of the target language when their communication resembles the kind of language they would produce if they were in a non-pedagogic setting (Edmondson, 1985, p. 161). Despite the constraints that teacher talk may have for L2 acquisition—if it does, the teacher in the classroom is still the main source of input for most learners (R. Ellis, 1994a).

In this study, language learning that takes place in a classroom environment is the focus of attention as this investigation involved second language learners enrolled in a Spanish program. In a classroom environment, teachers usually present the second language as an object of study that can be parsed and labelled using technical terms. However, can all language be parsed and labelled for learning purposes? Does every single form and construction of a second language receive an explanation and a name? Or, are there aspects of a language that not even teachers are aware they are using? The following is a review of the input—in the form of language knowledge—that is available in the classroom. First, explicit knowledge as the traditional and guided method of language teaching is presented. Then, implicit knowledge, considered the less clear form of linguistic knowledge, is discussed. Special emphasis is given to implicit knowledge since the description of motion events and the semantic conflation patterns at play in specific verb lexicalizations—the focus of this study—is not a content area taught in Spanish language programs. Therefore, when teachers produce input that contains motion descriptions, their aim is to communicate a message not a lexicalization or conceptualization pattern. However, in this intent,

they unintentionally expose learners to the form-meaning mappings for the description of motion events in Spanish.

2.3 L2 knowledge: Explicit and implicit

In the process of acquiring a second language in the classroom, learners are exposed to linguistic input that contains two kinds of L2 knowledge: explicit and implicit. Traditionally, explicit and implicit knowledge are defined as the outcome of two learning processes whose defining characteristic is the presence or absence of awareness at the moment of processing the input (DeKeyser, 2003; R. Ellis, 1994a; Krashen, 1994; Schimdt, 1994a, 1994b; Sharwood Smith, 1994; Williams, 1999). In this sense, explicit knowledge is acquired through a conscious process, whereas implicit knowledge is acquired through a process that is unconscious. As has been observed, the two forms of knowledge bear a direct relationship with the nature of the associated learning processes (Hulstijn, 2005). The distinction between explicit and implicit knowledge is not exclusive to the field of second language acquisition (SLA). Bialystok (1981) indicated that, in cognitive psychology, these two forms of knowledge have frequently been employed under the names of figurative knowledge vs. operative knowledge, objective knowledge vs. personal knowledge, *know how* vs. *know that*, belief vs. knowledge, or declarative vs. procedural.

2.3.1 Explicit L2 knowledge

There are many definitions of explicit knowledge (also known as declarative knowledge) available in the literature and most authors have proposed definitions with a common denominator stressing the idea of conscious awareness of the existence of L2 knowledge as the learner is capable of describing formal properties of the target language. Here, two of these definitions are reviewed. R. Ellis (1994b) first defined explicit knowledge in terms of non-surface linguistic regularities of a second language whose existence does not depend on the use or application of this knowledge. Specifically, Ellis indicated that explicit knowledge is "analyzed (in the

sense that it exists independently of the actual instances of its use), abstract (in the sense that it takes the form of some underlying generalization of actual linguistic behaviour) and explanatory (in that the logical basis of the knowledge is understood independently of its application)" (p. 84). In more recent work, R. Ellis (2004) presented a thorough review of explicit knowledge and proposed a new take on how the term should be defined and measured. In this new definition, Ellis stated that explicit knowledge is "the conscious awareness of what a language or language in general consists of and/or of the roles that it plays in human life" (p. 229). He further clarified his definition by saying that "explicit knowledge is knowledge *about* language and *about* the uses to which language can be put" (p. 229, emphasis in the original). Notice that in this new definition, Ellis has incorporated the idea of language use as an integral part of this overall knowledge of language and that the speaker is consciously aware of it. It is also this state of awareness that allows learners to represent this knowledge to them or verbalize it if they are asked (De Jong, 2005; Paradis, 1994). A more applied view of explicit knowledge was advanced by Krashen (1981, 1982) in the Monitor Model. He proposed that explicit knowledge plays a role in L2 production as learners use it to edit the well-formedness of the L2 language before and/or after they produce it. This implies that learners have to perform a conscious and deliberate application of explicit knowledge on sentences that were produced automatically. Paradis (1994) states that the production process enables speakers to produce sentences on-line and without control over the structures; however, the use of explicit knowledge requires that learners consciously control the language production applying known grammatical rules. This entails that when learners apply explicit knowledge, the automaticity of the production process becomes controlled.

Clearly, a defining characteristic of explicit knowledge is the awareness that learners have of knowing some properties of the second language and the regularities underlying them (Bialystok, 1981). Learners arrive at this knowledge, not without effort. On the contrary, they intentionally focus their attention on those aspects of the language they want to memorize (Paradis, 1994). Afterwards, they can bring those

contents into conscious awareness for verbalization. In this respect, explicit knowledge is usually presented to L2 learners by means of metalinguistic terms that teachers employ to identify the different morpho-syntactic rules of the target language. However, inability to verbalize explicit knowledge metalinguistically does not preclude the existence of such information in the learners' minds or unawareness of this knowledge (Bialystok, 1981, p. 35; Paradis, 1994; Schmidt, 1990). Another important aspect has to do with the abstract nature of explicit knowledge. R. Ellis (2004, p. 230) noted that explicit knowledge is a mental phenomenon and there is no direct access to it, except for when learners apply it in language tasks. Finally, and as mentioned earlier, there is a direct relationship between the nature of explicit knowledge and the learning process that enables learners to incorporate it; in other words, the learning process is also explicit. Here, conscious awareness plays an important role because it facilitates the relations that learners can establish between features and forms of the newly acquired language content (N. Ellis, 2005).

Traditional teaching environments stress the formal aspects of the language through an explicit presentation of the morpho-syntactic and phonological rules of the second language. Learners apply this knowledge viewing the language much like another subject of study (Krashen 1982, Krashen & Seliger, 1976) about which, they can even formulate and test hypotheses as they search for structures (N. Ellis, 1994a; R. Ellis, 1994b; Hulstijn, 2005). Moreover, learners often resort to memorization and problem-solving as typical activities in explicit learning (R. Ellis, 1994b). In the case of Spanish, memorisation takes place as learners consciously attempt to incorporate into memory grammatical information such as verb conjugations, rules to coordinate nouns and adjectives, the use of prepositions *por* and *para*, among others. Problem-solving is evidenced when learners perform a conscious processing of the input data they receive with the aim of discovering "whether the input information contains regularities and, if so, to work out the concepts and rules with which these regularities can be captured." (Hulstijn, 2005, p. 4). But access to explicit knowledge about Spanish is not circumscribed to the classroom only. Learners may also seek and receive some form of declarative knowledge in a naturalistic context. This happens

when during the course of an interaction, a learner (particularly an older one), requests information about an expression or the form of a structure from a native speaker or a more proficient L2 Spanish speaker (Mitchell & Myles, 1998). But, can learners always be aware of the language forms they are learning and producing? Is language learning possible in the absence of awareness? In what follows, implicit learning of linguistic input is discussed.

2.3.2 Implicit L2 knowledge

The notion of implicit knowledge—or *implicit competence* as Paradis (1994, emphasis in the original) called it, stands as the counterpart to explicit knowledge. R. Ellis (1997, p. 130) described L2 implicit knowledge as the knowledge of lexical items, formulaic constructions, and rules or generalizations of the target language which are incidentally acquired. That is, while L2 learners focus their attention on the meaning of utterances, they acquire the form. In this sense, implicit knowledge can also be considered intuitive since L2 learners have no awareness of having being exposed to particular language content; hence, they are unable to articulate it. Linguists and language teachers indirectly observe implicit knowledge when learners' output—as a result of applying grammatical rules—contains some linguistic properties of the L2. Then it is concluded that learners possess knowledge about the underlying structure of the target language (De Jong, 2005; Paradis, 1994).

The content of implicit knowledge can be of two kinds: discrete items or rule-based knowledge. The first kind of knowledge is found in the vocabulary of native speakers and in the interlanguage of second language learners. As part of the linguistic competence in the second language, learners build a lexicon that contains a large number of formulas or semi-fixed expressions (e.g., *Buenos días* "Good morning", *¿Qué tal?* "How are you?", *¿Qué pasa?* "What's up?"). Learners incorporate this formulaic knowledge unconsciously and as unparsed chunks while receiving input. Crucial to this kind of learning is the frequency of exposure to the input as is also the case in other forms of implicit learning (N. Ellis, 1994a; Krashen,

1982; 1985; 1989; Pawley & Syder, 1983). The number of ready-made units of language increases rapidly as speakers' frequency of exposure to language input also increases. Many of the formulaic expressions of learners result from routine interaction because they fulfill management activities in the language classroom.

The second kind of implicit knowledge deals with syntactic rules that form the mental grammar of a speaker. This tacit knowledge enables a speaker to create novel sentences and judge sentence well-formedness. Native speakers of a language apply these rules intuitively and often cannot explain the reasons behind their linguistic behaviour (R. Ellis, 1994b). For L2 learners, rule-based knowledge is at the core of grammatical competence and it is mainly evidenced in intuitions rather than in explanations for using the language (Gass, 1983; Sorace, 1986). There seems to be agreement, both in cognitive psychology and in SLA, that implicit learning facilitates the acquisition of complex language forms (N. Ellis, 1994a; Krashen 1982, 1994; Reber, 1976; Reber, Kassin, Lewis, & Cantor, 1980). It is likely that if learners manifested intentionality for learning these complex structures, they would need explicit instruction. Interestingly enough, the description of motion events in L2 Spanish includes the two kinds of implicit knowledge just described. On the one hand, learners have to consider the way the concept of motion becomes lexicalized in a verbal form which implies building a vocabulary of manner and path verb types. On the other hand, they have to learn the syntax of the prepositional and adverbial postverbal constructions that modify the motion verbs in a sentence. In Sections 2.10.1 and 2.10.2, there is a detailed explanation of how these two aspects of motion interrelate both in English and in Spanish.

2.4 Implicit learning of a second language

Like explicit knowledge, the nature of implicit knowledge defines the learning process as implicit, too. That is, learning new information implicitly is characterized by the lack of awareness manifested by the learner during the process of learning. Pioneering research in implicit learning was carried out in the field of cognitive

psychology, in particular by Arthur Reber (1967). Using artificial grammars, Reber demonstrated that people could learn without resorting to explicit strategies and the outcome of their implicit learning could successfully be applied to other kinds of tasks. Frequency was a crucial factor because, as Reber stated, implicit learning was "a primitive process through which learners apprehend structures as they pay attention to frequency cues" (p. 93). Hayes and Broadbent (1988), also within the field of cognitive psychology, stressed the dimension of implicit learning as being a non-selective process that aggregated information passively about the events and features that surrounded the learner (p. 251).

In second language acquisition research, the notion that most acquisition takes place implicitly or unintentionally has remained popular. In an early discussion, Stern (1983) claimed that "much, and perhaps even most, of such language learning goes on without any teaching, and some of it outside the conscious awareness of the learner" (p. 19). According to Seliger (1983) implicit learning was essentially an unconscious process and he claimed that "obviously, it is at the unconscious level that language learning takes place" (p. 187). Subsequent definitions of implicit learning have continued to stress lack of awareness or consciousness of learners at the time of input processing as a unifying characteristic of implicit learning (De Jong, 2005; DeKeyser, 2003; R. Ellis, 1994b, 1997; Gregg, 1984; Krashen, 1994; Schmidt, 1993, 1994a, 1994b; Sharwood Smith, 1994; Williams, 1999).

As a matter of fact, Krashen (1981, 1983, 1985) presented implicit learning (what he called *acquisition*) as one of the theoretical cornerstones of the Monitor Model. In this model, acquisition was defined as a "subconscious process identical in all important ways to the process children utilize in acquiring their first language" (Krashen, 1985, p.1). One proviso for the activation of first language acquisition mechanisms is that learners receive comprehensible input while they interact in the target language. Krashen developed his notion of implicit learning as the opposite pole to the conscious process that takes place in the classroom when learners receive

explicit instruction about the rules of the second language. In this way, learners end up "knowing about" the language as a subject matter (Krashen, 1985).

It is worth mentioning, though, that the idea of implicit learning occurring in complete unconsciousness has been disputed. Studies using artificial language demonstrated that learners are conscious of some aspects of the input since some degree of attention is necessary for language processing (DeKeyser, 2003; Dulany, Carlson & Dewey, 1984; Hsiao & Reber, 1998; Reber, 1989; Schmidt, 1990, 1994b, 2001). Noticing features in the input does not entail recognition of the abstract system underlying the forms. Instead, noticing enables speakers to perceive salient aspects of the input and keep them in short-term memory. N. Ellis (2002) argued that the noticing of a property of the language is no longer needed after a stimulus is established in a speaker's linguistic system. This idea assumes, however, that the speaker has to use the stimulus for the processing of future input meaning; in this way, the strength of the stimulus is incremented and its associations are tallied and implicitly catalogued (p. 174). Furthermore, it is always possible that language users perform an introspective observation, resulting in awareness of some properties of their implicit knowledge.

Regarding the sources of implicit learning, cognitive theories of language acquisition take the view that speakers develop their linguistic competence from comprehending and producing language. When speakers engage in communication, they implicitly abstract the form-function mappings that constitute the grammar of a language. N. Ellis (2002) argued that usage induces learners to detect the internal patterns of the language after hearing thousands of constructions from the input they receive. In this usage-based approach, frequency of elements in the input is a major factor that triggers implicit learning in first and second language (Gass & Mackey, 2002; N. Ellis, 2002). In first language, native speakers learn to construct utterances correctly as they determine from the large amount of input they receive, the morpho-syntactic, phonological, lexical and pragmatic regularities of their mother tongue. In second language acquisition, frequency gives L2 learners the possibility to integrate

the form-function regularities noticed in the input and transform them into implicit knowledge (Chaudron, 1985; Gass, 1997; Gass & Mackey, 2002; Long, 1996; Pica, 1994). In the following section, the effect of frequency of exposure to language data is discussed in terms of its contribution to second language acquisition.

2.5 The effect of input frequency in second language acquisition

There are several references to the notion of input frequency in the SLA literature. Some studies have revealed trends between frequency of target forms in the L2 input and acquisition of the same. But such findings have not been undisputed as other investigations have yielded less straightforward results. Early evidence argued for a positive effect of high frequency of exposure on the learning of L2 target constructions. In a study on grammatical morphemes, Larsen-Freeman (1976) demonstrated the existence of a positive correlation between the L2 accuracy orders of grammatical morphemes and the input frequency orders of the same morphemes in the speech of two teachers of English as a second language. Hatch and Wagner-Gough (1976), in their study of the morpheme order, noted that the limited range of topics about which learners typically talk resulted in certain grammatical features occurring with greater frequency in the input. In this sense, the more frequently occurring items, so the authors claimed, were among those that emerged early in the learners' output. Krashen and Scarcella (1978) noticed that the high frequency of formulaic types of language in the interaction of teachers and students in the classroom, prompted an implicit acquisition of these constructions as students engaged in communication. Further evidence was presented by Hamayan and Tucker (1980), who found a positive correlation between the accuracy order of nine French syntactic structures in speech, elicited from L1 and L2 learners, and the input from classroom teachers which contained high frequency of the same morphemes. Finally, Long (1981) investigated the average order of acquisition of grammatical morphemes proposed by Krashen in the L2 English output of 36 Japanese elementary students. Long observed that there was a positive correlation with the frequency of the same morphemes in the input of the native speakers who had addressed them. In the same

vein, there are studies which have assigned input frequency a facilitative role in acquisition as it helps override the intrinsic complexity of some linguistic features (Bardovi-Harling, 1987). Larsen-Freeman and Long (1991) found that, in general, the initial data supported a role for frequency; and yet, they noted that no causal claims regarding its effect should be made.

As counter-evidence for the role of input frequency in L2 acquisition, Snow and Hoefnagel-Höhle (1982) carried out a study with a group of children from the United States who were learning L2 Dutch in Holland. They observed no significant correlation in the achievement and scores in relation to the quantity of Dutch input that the children received in the classroom, the amount of speech that was specifically directed at learners, nor in the quantity of speech that was directed at each individual learner and similar lack of correlation was observed by Lightbown (1983) in a morpho-syntactic investigation on the *-s* morpheme in English. Results showed that the frequency order of the same morpheme coming from the speech of one ESL teacher and the textbook used by the students bore no relationship to the accuracy order of this morpheme in the oral communication activities of students. Taking a cautious stand regarding the interpretation of results from previous studies, R. Ellis (1994a) indicated that the evidence gathered thus far was neutral with respect to the role of input frequency in language acquisition. He claimed that "[o]verall there is very little evidence to support the claim that input frequency affects L2 acquisition but there is very little evidence to refute it" (p. 273). R. Ellis opted for a position in which he acknowledged a role for input frequency, but in conjunction with other factors (e.g., L1 transfer, communicative need) that also influence L2 development. Similar cautious remarks about the role of frequency are found in introductory SLA texts such as Gass and Selinker (2001). More recently, N. Ellis (2002) in a seminal article has revived the discussion of the role of frequency not just in language acquisition, but in language processing and language use as well. Drawing from psycholinguistic and cognitive linguistic theories of language acquisition, N. Ellis proposed that the acquisition of the grammar of a language implies the gradual learning of thousands of constructions and the frequency-biased abstraction of

regularities within them (p. 144). In other words, through the exposure to multiple examples of lexico- and morpho-syntactic forms in a variety of contexts, language learners extract the most recurrent and salient form-meaning patterns of a language. In this usage-based conception of language acquisition, frequency facilitates learners' ample exposure to linguistic input which, in turn, results in more experience processing a diversity of language contents, determining their relative frequencies, and mapping forms to interpret their meaning (N. Ellis, 2002).

According to Gass and Mackey (2002), a frequency-based explanation is well-suited to the recent reformulation of the Interaction Hypothesis (Long, 1996). They claimed that interactional modifications might impact development through facilitating pattern identification, recognition, and storage of L2 input because, during the course of a conversation, language forms are rephrased, segmented, and repeated many times. Gass and Mackey (2002) established that frequency also contributes to the L2 output that learners produce (Swain, 1995, 1998). The idea is that through interactional input-output, learners receive input with multiple exemplars of target types and tokens that facilitate proper mapping of forms and meaning. In this usage-based scheme, the notions of type frequency (i.e., the many different lexical items that occur in the input) and token frequency (i.e., the number of times that specific words or phrases occur in the input) help explain the way in which input frequency interrelates with acquisition. Current research that considers the notions of types and tokens (Bybee, 1995; Bybee & Hopper, 2001; Bybee & Thompson, 1997) has demonstrated that type frequency rather than token frequency is an indicator of language productivity. Token frequency, as the multiple instantiation of a particular language form, leads to linguistic entrenchment, i.e., the formation of routines or habit formation of that language form (Langacker, 1988, 1999). The underlying assumption is that learners are more linguistically productive when they do not restrict constructions from the input to a fixed number of types; instead, they build up the constructions allowing for a variety of different types. This creates possibilities for the addition of other lexical items in the same construction as learners realize that the criterion for lexical inclusion becomes more open. Furthermore, high type

frequency indicates high frequency of usage of a construction, making it more accessible when learners need to use it with other lexical items. In this sense, type frequency seems to be a better indicator of the acquisition of form-meaning mappings, whereas token frequency serves to consolidate structures in the interlanguage (or learner language) as learners automatize their use in production.

2.6 Explicit and implicit knowledge in the language classroom

It is generally the case that explicit knowledge is produced within the confines of a language classroom as teachers with the aid of instructional materials lead learners to perform a conscious metalinguistic analysis of the second language. However, as mentioned earlier, some explicit notions about the L2 language may also be delivered in a naturalistic environment when a learner receives explicit clarification of grammatical information (Mitchell & Myles, 1998). Likewise, implicit knowledge seems to be more often found in contexts that emphasize meaning over form as is the case with a natural context in which L2 learners engage in meaningful communication, triggering subconscious processing of the second language (Lightbown & Spada, 1999). Notice, though, that the language classroom also offers learners the possibility of learning implicitly as the instruction is more oriented towards communication and the negotiation of meaning (Long, 1983a, 1996). And even a form-focused lesson may be the source for implicit learning because teachers are constantly producing more language input not directly related to the objective of the class. Thus, learners may in practice incorporate language forms which were not intended to be taught. The following example taken from R. Ellis (1990, p. 94) shows a sequence in which a teacher guides students to learn plural forms in English.

T: R _____, what is _____?

L1: This is book.

T: Wait. What is this?

L1: This is book.

T: 'A'.

L1: This is a book.

T: Right. Very good. What are these?

L1: What is _____

L2: These are _____

L1: This - these are
rubbers.

T: Rubbers.

L1: Rubbers.

In the example above, the teacher appears to be controlling the situation at all times, asking questions, assessing the students' answers, and providing with feedback. At the beginning of the interaction, the teacher used the third person copula *is* in a display question. The student answered with the same copula form and repeated the sentence three times. Then, the teacher, switching to the goal of the class, asked the same student a plural question. The student, through the interaction with a second student, managed to answer using the corresponding plural form. R. Ellis (1990) maintains that in this situation, students could learn the plural markers in English, but they could indirectly acquire the third-person singular copula *is*, thanks to the numerous instances of its use. This situation also demonstrated that a teacher is not aware of everything that s/he is teaching in a class. As R. Ellis rightly suggests, "learners may respond to form-focused instruction ... and acquire features not envisaged by the teacher" (ibid, p. 94). DeKeyser (2003) noted that in experimental situations of implicit learning, something similar happens. Participants usually learn more information than the abstract surface features of the stimuli presented by the experimenter. Perhaps, this could be attributed to the hidden nature of implicit knowledge and the learning process that makes it available. In the next section, a series of studies on explicit learning will be discussed. They constitute documented evidence of what has been learned explicitly in the L2 classroom and in laboratory conditions.

2.7 Empirical evidence for explicit learning

Drawing on the definition proposed by DeKeyser (1995), Norris and Ortega (2000) identified studies of explicit learning as those in which the L2 instructional treatment considered rule explanation or attention was drawn to particular forms so that learners arrive at metalinguistic generalizations on their own (p. 437). The studies which have compared the benefits of explicit and implicit treatment in the classroom are limited in number and, in general, they have provided scholars with positive evidence of attention to forms through explicit instruction, error correction or input enhancement (DeKeyser, 2003). In a study that involved college students of French as a foreign language, Scott (1990) investigated learning of relative pronouns and the subjunctive under two forms of treatment. Participants were distributed in two groups: the explicit group and the implicit group. In the explicit group, participants received explicit instruction about rule formation of the language content. However, these participants were not given any practice of the content rules. In the implicit group, participants did not receive any instruction of rule formation for either one of the two content areas. Instead, these participants were asked to read a text that was flooded with examples of relative pronouns and verbs in the subjunctive. In place of instruction, participants were informed about the presence of the examples in the text. Scott found that there was a significant benefit for the explicit condition on written post-tests. It is important to point out two important problems in this study. On the one hand, participants in the explicit group did not receive any practice using the language contents as it is normally the case as an exercise to complement the explanations. On the other hand, the relative short duration of the treatment set up an unfavourable condition for the implicit group. As a consequence, the conditions in which the treatments were conducted made the whole study a rather atypical learning environment.

The following two studies went beyond the comparison of explicit and implicit treatments and focused on the effect that both treatments can have on language use. Notice that these studies did not establish advantages of one treatment

over the other. Instead, they showed that both explicit and implicit conditions intervene at different stages of the learning process. For example, Bialystok (1979) conducted a study which showed that 317 L2 learners of French at various levels of proficiency were successful at making grammaticality judgements when responding under time pressure and in a delay condition. In the study, participants were assigned to one of three conditions which progressively increased in difficulty. The first condition consisted of listening to sentences in French with participants indicating whether the sentences contained a grammatical error or not. In the second condition, participants had to also identify the part of speech that contained the error. In the third condition, participants were asked to identify from a list of 9 rules, the one which had been violated in the ungrammatical sentences. The results showed that implicit knowledge was used to decide if a sentence was grammatically correct or not, but further analysis of incorrect sentences (second and third conditions), required the formal intervention of explicit linguistic knowledge. These trends in the data were observed when participants answered under time pressure and also in the delay condition. Bialystok also noticed that there were differential abilities for the identification of errors with adjective errors being easier to detect than verb errors. Similarly, Green and Hecht's (1992) study also supported the idea of implicit and explicit knowledge intervening at different stages of the learning process. In their study, the participants were 300 German learners of English. The participants were given a test which contained twelve errors extracted from common mistakes Germans learners made when performing in a written and an oral communicative task in English. The errors consisted of infringements of rules which have been taught to the learners who had made the mistakes. Participants were asked to explain the errors or state rules so that someone who commits those mistakes would understand and correct the errors. Participants were also asked to give a correct version of the sentences. Results showed that, overall, learners with *learned* rules were more successful at correcting the mistakes (78%) than indicating the correct rules (46%). Green and Hecht concluded that learners corrected the errors mainly using implicit rules (or by 'feel') and this had been possibly facilitated by a previous presentation of explicit rules. One last observation had to do with a high proportion of students who,

despite having spotted the mistakes correctly, cited the incorrect rule or no rule at all. And yet, they were still able to produce the required correction. In the next series of studies, the learning of new second language content was observed in explicit and implicit experimental conditions in laboratory studies.

The first study was conducted by N. Ellis (1993) and it observed the "soft mutation" of initial consonants in Welsh. The study was designed to compare the results of three groups of participants. In the first group, participants were exposed to numerous examples of consonant alternations in random order and without any rule explanation on the soft mutation of initial consonants. Participants in a second group received explicit instruction of the rules under study as well as the same randomized examples given to the first group. In the third group, participants were presented with explicit rule explanation of the mutation of initial consonants, plus two examples after each rule. In addition, the third group received the same randomized examples as the other two groups. Participants were asked to perform in a test of explicit rule knowledge and in a grammaticality judgement test. Results showed that the treatment used for the participants in the third group was the most successful at helping them become aware of the way rules apply to examples. Participants in the third group obtained good results in both tests. Conversely, participants in the first group were fast at judging the grammaticality of sentences they had seen before, but they were the slowest at generalizing their judgement to qualify new evidence. As to participants in the second group, they demonstrated explicit knowledge of the rules, but with low ability to apply this knowledge to evaluate sentences.

A second study that also showed superior evidence for the explicit treatment was conducted by DeKeyser (1995). The study aimed at examining form-meaning connections of subject-verb number agreement, using a miniature artificial language with rich morphology to mark gender, number, and case. The form-meaning-connections were studied under an implicit treatment which consisted of only in exposure to numerous sentence/picture pairs. Moreover, the connections were also studied under an explicit condition which also involved exposure and explicit

instruction of two kinds of rules. The first kind of rule (categorical rules) consisted of rules for the formation of form-function mappings. The second kind of rule (prototypical rules) grouped those which dealt with allomorphy. The participants were 61 English speakers who were asked to identify pictures and sentences in a matching task. To avoid having participants pay attention to the target meaning-form relationships, there were some mismatching pairs. In a production task, participants described pictures and typed the correct answers, using the artificial language. Results indicated a clear advantage for the explicit treatment over the implicit treatment on the form-function mapping rules. Although, participants in the implicit condition went through 20 learning sessions of 25 minutes each and received numerous relevant examples, they still responded at chance. These findings were interpreted as proof of the failure to learn rules implicitly. It was interesting that during the training phase, participants responded correctly to the stimuli; this indicated that they had paid enough attention to the right correspondences. Nevertheless, the training task did not require that participants attend to critical aspects of meaning or that they establish relations with forms. What can be concluded from this is that learning form alone is insufficient without meaning, and parallel attention to both is a necessary condition (DeKeyser, 1995).

A third and last example corresponds to a study conducted by Rosa and O'Neill (1999) in which 67 native English speakers enrolled in a fourth-semester Spanish program participated. The linguistic structures under studied were Spanish contrary-to-fact conditional sentences. The task included the use of a multiple-choice jigsaw puzzle which contained a piece of the puzzle depicting an event, a piece of the puzzle with the main clause of a conditional sentence, and subordinate clauses. Every participant received a packet with the jigsaw puzzle. In this study, there were four treatments to be applied in the problem-solving task. Two of the treatments included explicit rule instruction on the target construction. In addition, one of the groups required that participants performed a rule search during the task. In the rule search activity, participants were not asked to produce the target construction; instead, they had to use the grammatical information on Spanish contrary-to-fact conditionals

received and instructions on how to form a rule in order to write down the rule underlying the target form. Conversely, the other group was asked to memorize the information contained in the puzzle sentences rather than searching for rules.. The two conditions which did not include explicit rule instruction on the target construction had participants read a short text containing no conditional sentences and answered short content questions. In addition, participants in one of the non-explicit instruction condition completed the puzzle task whose script contained explicit directions to search for a rule. There was also a control group which received the same reading passage as the other conditions, but the participants were not given directions to memorize anything or search for patterns in the puzzle sentences. Participants were measured on their level of intake through a multiple-choice recognition test applied immediately after the experimental task. Moreover, participants were measured on level of awareness using think-aloud protocols collected during input processing. Results showed that level of awareness crucially determined the level of intake of the structure under study. Participants who showed higher levels of awareness allow for a more elaborate kind of structural learning. The study also indicated that awareness at the level of noticing alone may not be enough for learning, but it may be sufficient to register the structure cognitively and make it available for further processing. Rosa and O'Neill concluded in support of instructed learning over implicit learning as the formally instructed participants performed significantly better than those who received no formal instruction and directions to memorize. In addition, this study gave evidence which supports the noticing hypothesis (Schmidt, 1993), because those participants who reported noticing of the target structure also exhibited a substantial amount of intake. Finally, results in this study suggested that the conditions in which a task is administered may have an effect on the way participants process the information. Specifically, Rosa and O'Neill observed that most formally instructed participants as well as an important number of learners who were asked to search for rules reported awareness at the level of rule formation. The authors concluded hypothesizing that formal instruction and directions to search for rules may have contributed for raising the participants' level of awareness.

In sum, the very few studies which have narrowly compared explicit and implicit treatment in the L2 classroom and the laboratory studies alike have demonstrated clear advantages for the explicit treatment. A common drawback of this evidence, though, has to do with the length of the studies. With the exception of DeKeyser (1995), whose treatment lasted about 12 weeks, the rest of the studies were of short duration. As a consequence, the explicit treatment could have been positively affected over the implicit treatment by the duration of the studies. In the next section, some evidence of implicit learning in the L2 classroom and in laboratory conditions is reviewed.

2.8 Empirical evidence for implicit learning

Investigations into implicit learning are also few in number. Three studies report evidence of learning 'naturally' in L2 classrooms when lessons emphasised the exchange of information and the negotiation of meaning (R. Ellis, 1994a) over explicit grammar teaching. The first of these studies was conducted by Terrell, Gomez, and Mariscal (1980), involving 50 junior high school students from southern California. These were native speakers of English learning Spanish as a foreign language. The study aimed at examining, through error analysis, the acquisition of Spanish question formation. The researchers chose this content because it was feasible to teach a foreign language without explicitly teaching questions. Moreover, the textbooks in the classes investigated gave ample opportunities for the teacher to formulate questions, whereas the students mostly concentrated on answering them. The investigators predicted that if learners could formulate questions in Spanish with a certain level of accuracy, this would confirm that this skill could be unconsciously learned from exposure to the Spanish input. This prediction was based on an early version of Krashen's Monitor Hypothesis. For the study, students were invited to participate individually in a three-part activity. First, they had to think of any possible question in Spanish. Then, they were asked to formulate other questions using a list of interrogative words provided. Next, they had to ask questions using the list of interrogative words and caption less pictures. Results showed that 7th grade students

formed 74 % of the questions correctly and 82 % of the questions of 8th and 9th grade students were also correct. The researchers interpreted these results in support of their prediction as participants were able to ask questions in Spanish without having received any explicit instruction. The researchers indicated that some language rules are amenable to being acquired without explicit instruction provided that plenty of meaningful input is provided, as Krashen's Monitor Model proposed.

The second study was conducted by Beretta and Davies (1985) and it evaluated the Communicational Teaching Project (CTP) designed by Prabhu (1982) and his associates. This program was designed to have learners develop competence in the second language emphasizing meaning over form. The basic tenet of the CTP was that learners constructed grammatical units unconsciously as they focused their attention on communicating meaning (Prabhu, 1982, p.2). The CTP project was applied to beginner learners of English as a second language in several schools located in the cities of Bangalore and Madras in southern India. The methodology of the program had students go through three stages: a pre-task (where learners were informed about the task), the task (the time when learners could perform in the L2), and feedback (the reports on the students' performance in the task). Since Beretta and Davies were interested in comparing L2 achievement in students taking the CTP versus students studying in traditional structure-based programs, they selected students from four schools. Each school had one class that was studying English using the CTP program (the experimental group) and traditional grammar classes (the control groups). The investigators prepared a series of tests to measure achievement (using a structure test and a task-based test) and proficiency (measuring contextualized grammar, dictation, and listening and reading comprehension). The results showed that there were small but significant differences between learning using a task-based approach and no explicit instruction. These results were interpreted as tentative support for the CTP. Beretta and Davies concluded that students demonstrated that grammar constructions can emerge unconsciously as students' attention was directed to meaning. The investigators also noted that none of the experimental groups had been exposed to the CTP for more than three years. They

considered that this short period of time made it difficult to generalize the effectiveness of CTP to more advanced students.

The third study was also motivated by an evaluative purpose of a learning program and it was conducted by Lightbown (1992). This author reported on the third year evaluation of an English as a Second Language program for children in Grades 3-6 implemented in French-speaking schools in New Brunswick, Canada. The goal of this experimental program was to have children learn English by receiving comprehensible input through listening and reading activities. Three premises supported this program: (1) acquisition occurred as learners received interesting and comprehensible input; (2) comprehension preceded production with no need to force the latter; and (3) being relaxed and comfortable contributed to a better learning experience. In the program, children did not receive any explicit instruction, drilling, practice, nor had to converse in the target language. All they had to do was to individually listen to and read materials available in the classroom. The materials (e.g., text-stories and informative non-fiction texts) were varied and they were not organized in a graded linguistic sequence. The interaction with the teacher in the classroom was minimal. Children in the experimental program, like those enrolled in traditional language programs, began to study English in Grade 3. Lightbown collected the data from students in Grade 5. Results showed that students in the comprehension-based program effectively developed the more second language skills in English. Even more striking was the fact that in the oral performance assessment, students scored better results than those students in a traditional program. Remember that children in the experimental program did not practice speaking in English. The overall findings of Lightbown's study supported the assumption regarding a positive effect of comprehensible input in language learning (Krashen, 1985). The elementary level learners in the experimental program acquired linguistic skills in L2 English based on the information they listened to and read, not on form-focused explanations given by the teacher.

Other studies have employed implicit treatment in laboratory conditions. The common characteristic of these experiments is that at no time during the completion of the tasks were participants asked to attend to specific forms in the input nor were rules of any kind explicitly presented (DeKeyser, 1995; Norris & Ortega, 2000). The first study conducted by Long, Inagaki, and Ortega (1998) studied the effect of implicit negative feedback through models and recasts in L2 Spanish and L2 Japanese. Here, only the Spanish study is reviewed. The participants were 30 young adult undergraduate students from third-semester Spanish classes. The target content was the topicalization of direct objects and adverb placement, presented under model and recasts conditions. In the testing phase, participants performed in two communication tasks and listened to taped instructions with six models and six recasts of the two target structures. Results showed that direct object topicalization could be learned through models and recasts; adverb placement, however, could only be learned through recasts. Despite a general disappointment with the results, the researchers concluded that implicit negative feedback was a facilitator of second language acquisition, especially of adverb placement. They were also in favour of a cautious interpretation of results because the short duration of the treatment (six tokens) underestimated the input, leading to biased results. They suggested that this short-term study, as well as others in SLA, should be complemented with detailed longitudinal investigations.

A second example corresponds to a study by De Jong (2005) which aimed at determining whether an implicit presentation of linguistic input generated a knowledge base that could be applied in comprehension and production tasks. The target structure was noun-adjective gender agreement on attributive and predicative adjectives in Spanish. The participants were fifty-five speakers of Dutch from different higher education institutions. The participants were divided into three groups: Group 1 (who received receptive training), Group 2 (who received receptive and production training), and a Control Group (who only read an explanation of the target structure). Since none of the participants had any knowledge of Spanish, they received training on vocabulary and the target structure. During the testing stage,

participants answered two online tasks, a self-paced listening test and a match-mismatch test. There was also a speeded grammaticality judgement test that evaluated the participants' receptive knowledge. In a production task, participants described pictures in single- and dual-task conditions. For the post-test, they responded to a computerized questionnaire to find out whether they noticed a rule during the experiment. Results indicated that Groups 1 and 2 processed sentences with agreeing adjectives faster than the Control group in the receptive mode. In production, the Control group showed more accuracy than Groups 1 and 2, particularly for feminine adjectival forms. Results of the post-test questionnaire showed that almost all participants were able to grasp some form of explicit knowledge of the target rule during the experiment. De Jong's study showed that the receptive training helped participants create a base of knowledge (implicit or explicit) that was available for comprehension, but it did not guarantee accuracy in the production task. Although this was a study of implicit knowledge and learning, the experimenter could not conclude with certainty the kind of knowledge that was used since participants manifested explicit knowledge of the target rules. De Jong, drawing from DeKeyser (2003), concluded that the short duration of the study seemed to have favoured explicit learning. The development of implicit knowledge takes longer than just a few training sessions and it implies processing multiple examples of a language form.

Finally, Williams (2005) investigated whether it was possible that form-meaning mappings could be acquired without awareness of the exact connections between them. His aim was to explore a situation in which learners noticed the relevant form and meaning of constructions, but they would not be able to tell what the connections were. For this study, there were 41 participants and 34% of them were advanced non-native speakers of English of different language backgrounds (e.g., Cantonese, Dutch, Greek, Mandarin Chinese, Portuguese, Serbian, Slovenian, Taiwanese); no language information was reported for the rest of the participants. The target language consisted of four novel determiners which were assigned values of animacy and distance. The words *gi* and *ul* referred to animate objects which were near and far, respectively. The words *ro* and *ne* referred to inanimate objects which

were near and far, respectively. In addition, there were 12 English nouns which referred to animate (living) objects and 12 English nouns which referred to inanimate (nonliving) objects. Eight nouns of each class occurred with both possible determiners in singular form (e.g., *gi dog* vs. *ul dog*; *ro sofa* vs. *ne sofa*) or plural form (e.g., *gi pigs* vs. *ul pigs*; *ro boxes* vs. *ne boxes*). The remaining four nouns only appeared with one determiner. The determiners and nouns were presented in sentences which intended to make it clear how far away the object was in the context of the situation described. The associations of nouns and determiners depended mainly on the animacy of the nouns. This feature was particularly stressed during a training session without informing participants about the relevance of it. Participants received a list of the four novel determiners (the target forms) that indicated animacy and distance. During a training phase, participants were presented with equal instances of animate and inanimate nouns in written sentences. For the testing stage, participants had to listen to sentences and indicate whether the objects mentioned appeared near or far from the subject. Next, they had to repeat the sentence aloud. While performing these tasks, participants were asked to form a mental image of the situation described by the sentence. They were also instructed to pay special attention to the distance relationship mentioned in the sentences. Results obtained in a post-test oral interview showed that only 8 participants manifested awareness that animacy was the relevant factor to determine the correct determiner-noun relationships and could state the rules. The rest of the participants were not aware of animacy as the target rule. The same trend was maintained in a second phase of the study when some participants who were instructed to search for the rule, still responded without awareness of it. Williams concluded that even though most participants were unaware of animacy, they could still establish the correct determiner-noun relationships implicitly. Williams repeated the study in 24 advanced non-native speakers of English of various language backgrounds (e.g., Albanian, Arabic, Bosnian, Mandarin Chinese, Croatian, German, Korean, Macedonian, Serbian, Singhalese, Spanish, Taiwanese, Ukrainian). Results showed that 7 participants established the determiner-noun relations, were aware of animacy, and could state the rule. The other participants were not aware of animacy. Williams concluded that participants used

animacy in their responses, but were not conscious of its relevance. Williams argued that his results contradicted common beliefs about language acquisition. On the one hand, the acquisition of form-meaning mappings requires attention to both form-meaning and probably their integration when encoding sentences. On the other hand, in this study, most participants attended to the feature of animacy without integrating it to the form during processing (cf. DeKeyser, 1995). In this sense, these results challenge a well-established assumption in implicit learning, that noticing is a necessary condition for learning (Schmidt, 1990, 1993, 1994b, 2001). Most participants in William's study reported complete lack of awareness of animacy while processing the input. And yet, they were successful at applying the correct mappings of noun and the novel determiners (*gi*, *ul*, *ro*, and *ne*) according to the animacy of the noun.

In sum, these studies demonstrate that some morpho-syntactic language constructions can be learned implicitly in the classroom when there is abundant input that is meaningful and comprehensible on the part of the learner. It is important to consider, though, that this evidence only supports implicit learning at an elementary level. At present, there are apparently no studies on implicit learning in more advanced L2 students. Results from laboratory experiments were not all conclusive in favour of implicit learning. In the case of De Jong (2005), whose study was designed to investigate implicit knowledge and learning, participants still demonstrated explicit knowledge of the target rules. As to the duration of treatment, Beretta and Davies (1985), Long et al. (1998), and De Jong (2005) noted that these studies were conducted in relatively short periods of time and this factor should be considered not just in terms of the generalizations that can be established from these results, but also in an underestimation of the input that induces biased interpretations. DeKeyser (2003) also observed that the L2 laboratory and classroom studies that directly compared implicit and explicit learning were also of a short duration and this could account for results that tended to be biased in favour of explicit learning. For this reason, the limited evidence available about implicit form-meaning mappings is not conclusive. One last point has to do with DeKeyser's (1995) observation that learning

required parallel attention to both form and meaning. Williams (2005) did not support this idea since most participants in his experiments never attended to animacy (the meaning component) when they processed input sentences. This lack of attention (Schmidt, 1990, 1993, 1994b, 2001), though, did not prevent participants from learning that animacy was related to the determiners (the target forms). Results clearly indicated that participants construed form-meaning connections that were well above chance.

Another direct consequence of a too short duration study is that participants receive more limited frequency of the target input. In the study by Long et al. (1998), the limited time duration resulted in low input frequency (e.g., six tokens) that participants received. Long et al. particularly referred to the lack of confident generalizations that short-term studies produce, since the interpretation of the data could be biased. They argued for longitudinal investigations in L2 acquisition, suggesting that a longer period of time guarantees learners more opportunities to receive the target language forms. The underlying assumption is that frequency of exposure correlates with the implicit attainment of L2 constructions when this process unfolds over time. An example of the effect of a prolonged exposure to input data could be observed in the acquisition of ready-made phrases typically used in the routines and patterns in the L2 classroom (Krashen and Scarcella, 1978). Crucial for this implicit learning is the multiple exposure to the phrases in the input, as well as the numerous instances of mapping the phrases to particular communicative situations. N. Ellis (2002) claimed that the language processing that is based on frequency and probabilistic knowledge results in implicit language learning (p. 145).

With respect to the present study, the fact that motion does not receive explicit instruction is compensated for the high recurrence of the topic in human experience. As mentioned earlier, it should thus not be uncommon that Spanish teachers often direct learners' attention to people, animals, and things that move in space. As a consequence, learners could determine the form-meaning mappings for the expression of motion from the input received in class and during the many instances of applying

these constructions in *communication*. Ideally, the role of frequency would be observed directly from the motion patterns that teachers presented to students in class, but that would be somewhat challenging to implement. In such an investigation, the effect of frequency could only be indirectly observed from the motion descriptions produced by a native-group of comparison. In what follows, the topic of motion descriptions in English (the participants' first language) and Spanish (the second language under study) is discussed in light of the theoretical proposal advanced by Talmy (1985, 1991, 2000) about the way different languages "package" information about motion events. Emphasis is given to the crosslinguistic differences that the lexicalization of motion tends to produce between English and Spanish since they illustrate how speakers of English whose conceptualization scheme stresses one particular aspect of motion, learn the Romance language whose conceptualization of motion differs in important ways.

Chapter 3: The concept of Motion

The description of motion events is a recurrent topic in human communication due to the importance it has in our daily experience (Langacker, 1987, 1991). The inherent meanings of verbs of motion reveal a relationship that exists between perception and language since a speaker is able to physically experience movement or the movement of another entity while simultaneously talking about it (Miller & Johnson-Laird, 1976). Some theoretical positions from cognitive semantics postulate that, across languages, speakers lexicalize motion using lexico-syntactic constructions that emphasize different aspects of the event. In this sense, motion events are a fertile area to explore the effect that crosslinguistic differences may have in how learners acquire and produce form-meaning mappings to describe motion in a second language.

In its basic form, motion implies the idea of a change of location experienced by an entity within the realm of space and time (Frawley, 1992; Langacker, 1987, 1990; Miller & Johnson-Laird, 1976; Talmy, 1985, 2000). Consider sentence (1) taken from Langacker (1987), as a typical description of physical motion.

(1) *A black dog walked across the field, through the woods, and over the hill.*

(Langacker, 1987, p. 170)

In this example, the *dog* is the entity (the mover or figure) that experiences dislocation from an unidentified point that serves as the origin of motion to a destination that is also unidentified. The path followed by the mover is marked by prepositions *across*, *through*, and *over*. This is an example of *translational motion* since the object's basic location changes from one point to another in space (Talmy, 2000).

Even though change of location unmistakably defines verbs of motion, not all motion is locomotion. There are other verbs whose meaning indicate the idea of *self-contained motion* because the object maintains its same location (Talmy, 2000, p. 35).

Examples of these kinds of verbs are *oscillate, pivot, revolve, rotate, spin, spiral, turn, twirl, whirl*. Miller and Johnson-Laird (1976) also considered verbs like *absorb, broaden, deepen, diffuse, empty, expand, extend, fill, grow, lengthen, narrow, shorten, shrink, spread, widen* to involve "motion" (p. 529). These verbs profile movement of boundaries because their meaning indicates changes of shape or size in the mover or figure.

In his typological analysis of motion events, Talmy (1985, 1991, 2000) takes a more holistic position with respect to the presence or absence of locomotion in a motion verb. He argued that events that imply motion equally entail verbs that profile displacement as well as those that profile the continuation of a stationary location (locatedness). In the present study, the focus of interest is the conflation patterns that enter into the lexicalization of verbs of motion that describe a change of location. Therefore, the description of motion in a stationary location does not fall within the scope of the present study. Talmy's typological proposal is one of the most comprehensive and influential studies on the internal structure of motion and the way different languages represent this concept at the sentence level. First, considering the verb and then the verb particles, Talmy observed which components of a motion event characteristically surface across languages (ibid., 2000). Talmy's proposal has motivated numerous empirical studies which have explored how speakers (children and adult) of a wide range of languages lexicalize motion events in oral discourse. In the present investigation, Talmy's proposal also guides the analysis of motion event descriptions in Spanish as a second language.

3.1 Talmy's motion event typology

Talmy (1985, 1991, 2000) identified four different elements that internally compose the conceptual prototype of a motion event:

1. **Figure:** It indicates the object that is in movement (the movable object) or that is located with respect to another object.

2. **Ground:** It serves as a reference-point (location) for the displacement of the moving object.
3. **Path:** It refers to the trajectory followed by the Figure in relation to the Ground object.
4. **Motion:** It indicates the presence per se of motion in the event.

In addition, a motion event can unfold in association with an external Co-event which usually stands in relation to the motion event as its manner or cause (Talmy, 2000, p. 26). In this sense, the manner represents a subsidiary action which makes reference to factors such as the speed, the effort, or the strength with which the fact of motion occurs. The cause indicates whether the fact of motion is produced by the action of an external agent or not.

Talmy (1991) identified path alone or the path together with its ground locations as *the core schema* for an event of motion (p. 483). The core schema should be understood as a relational structure and it sets the figural entity into association with selected ground elements (ibid., p. 483). Crosslinguistically, languages differ in terms of the constituent(s) in which the core schema becomes lexicalized in a sentence. Talmy describes these differences and proposed that languages exhibit typological patterns in the way other meaning components conflate with motion in the verb phrase. The first language type includes languages in which the core schema is lexicalized in a non-nominal postverbal construction called a satellite or particle "that is in a sister relation to the verb root" (ibid, p. 102). The main verb, on the other hand, lexicalizes both the fact of motion and manner or cause. The languages that conform to this typology are identified as *satellite-framed*. The second language type includes all those languages that lexicalize the core schema in the main verb root with manner optionally expressed in adjunct constructions. Languages from this typology are called *verb-framed* languages. There is a third language type which includes those languages in which the event of motion and the figure become conflated in the main verb. Atsugewi and other languages of this typology (e.g., Navaho and possibly most northern languages of the Hokan family) have verbs whose meaning expresses

various kinds of objects or materials as moving or located (ibid., 2000). Of interest for this study are satellite-framed and verb-framed languages as they reflect the dominant pattern type in the two languages under study: English and Spanish. Despite the undeniable influence of Talmy's motion event typology, it was based on decontextualized and stereotypical examples which may not reflect actual language usage. Moreover, there have been studies which have shown that Talmy's typology does not include all language types or, rather, not all the motion expressions in a language entirely conform to one of the three motion types. There are languages that seem to respond to a combination of patterns or an entirely different event-type (for more details see Brown, 2004; Slobin, 1987; 1991; 1996; 2004; Zlatev & Yangklang, 2004).

3.1.1 English as a satellite-framed language

In satellite-framed languages, the motion meaning component appears conflated with an external Co-event bearing the relation of manner or cause to the motion event (Talmy, 2000, p. 26). This entails that speakers conceptualize the displacement of a figure along with internal specificities of the act of motion. This type of motion conflation is found in English and some other Indo-European languages (though not Latin-based Romance languages), Finno-Ugric, Chinese, Ojibwa, and Warlpiri. Particularly in English, empirical evidence has demonstrated that in spontaneous descriptions of motion scenes, speakers favour the use of intransitive verbs that conflate motion and manner or cause into the main verbal element in a sentence. In other words, in a single verb, English speakers conflate movement from one point to another and give semantic specificity about the way the figure performs the event. According to Vendler's (1967) *Aktionsart* classification, manner verbs are atelic activities that unfold in a temporally unbounded period of time. In this vein, Tenny (1995) added that manner verbs are "aspectually underspecified for describing temporally bounded events, in a more regular and systematic way than are the other classes of verbs" (p. 52). Notice, though, that in English adjunct constructions, namely certain prepositional phrases, give manner

verbs a telic interpretation when they establish an end-point or goal for the motion event (e.g., *The Pink Panther ran to the door*). The following are few examples of manner verbs: *walk, run, jump, fly, roll, crawl, swoop, tumble*.

When speakers of satellite-framed languages want to mention the path of motion, they conceptualize it in a limited class of syntactic elements known as *satellites* (Talmy, 2000). As mentioned earlier, the term satellite is defined as a non-nominal constituent standing in a sister relation to the verb root (ibid, p. 102). The term *verb particle* is also used in place of satellite; the latter term, though, captures more syntactic and semantic similarities of languages from this group (ibid, 2000). In English, if path is mentioned, speakers lexicalize it through a system of satellites accompanying intransitive motion verbs in postverbal position (e.g., *walk back, run away*). In discourse, an English speaker may elaborate a description of a motion event referring to path in a single satellite or more fully in a satellite and a prepositional phrase whose nominal complement may add information about ground (e.g., *runs back into the room*). Since satellites and prepositions may be placed next to each other in English, they may be subject to confusion; however, Talmy indicates some possible ways to distinguish them. For example, the two classes of forms do not have identical memberships as some forms only function as satellites and never as prepositions and the opposite is valid for prepositions (ibid., 2000). Examples of forms that only function as satellites are: *apart, away, back, forth, and together*. Conversely, *at, from, of, toward* are forms which only function as prepositions. There are cases, however, in which the same forms function as satellites or as prepositions (e.g., *to, over*); and yet, they may be distinguished because they have different semantic interpretations in the sentence. In terms of co-occurrence, a satellite form functions in relation with the verb and not with any object nominal, whereas a preposition functions in relation to its object nominal. Proof of this concomitant relationship is that in cases in which the object nominal of a prepositional phrase is omitted, the preposition has to be omitted too (e.g., *the cuckoo bird was in his little house, but then he walked out (of it)*). But because the satellite is not in construction with an object nominal, in cases that an object nominal is omitted because it is

contextually inferable, the satellite may still remain (e.g., *The cuckoo bird was in his little house, but then he walked out*) (for further information on satellites and prepositions see Talmy, 2000, p. 107). Consider the following examples that correspond to the kind of motion descriptions elicited by participants in this study.

(2) a. *The Pink Panther walked out of the house.*

b. *The Pink Panther ran out, back, up, over, around the bridge.*

In example (2a), the same verb *walked* describes the act of motion experienced by the Pink Panther and it *also* specifies that the manner of displacement was by *walking*. The satellite *out* in construction with the verb and preposition *of* in construction with its object nominal indicate path (i.e., the directionality of the motion event). Moreover, the object nominal *the house* conveys ground information that indicates the point of origin of the motion event. In example (2b), the verb *ran* also conflates manner and motion and a series of satellites, in direct dependency to the verb root, indicate the directionality of the motion event. A sequence of satellites like the ones presented in sentence (2b) allows for a highly compacted description of path in just a single clause. The granularity of the description is a characteristic of the English narrative style that decomposes a single motion event into a large number of components (Slobin, 1997). The following examples taken from Talmy (1985, p. 104) illustrate some common path satellites in English: *above, across, along, apart, around, away, back, below, down, forth, in, off, on, out, over, past/by, through, together, up*. Notice that in several cases, the same satellite may combine with different verbs, taking a different interpretation as in *I stepped off* and *he drove off*, *she came over* and *it toppled over*, or *it flew up* and *I ran up* (Talmy, 2000, p. 104).

In English, motion descriptions may also be lexicalized with manner in a transitive schema whose direct object identifies ground information (e.g., *The Pink Panther grabbed the door, the Panther hammered the entrance shut*). Nevertheless, when the discourse context is rich in ground information, speakers find it unnecessary to foreground details about the location, yielding verbs with no ground information at

all (e.g., *The Pink Panther was walking, the Pink Panther left*). These verbs with zero postverbal constructions are also known as *bare verbs*.

While English shows a general tendency to express motion in manner verbs (e.g., *run, walk*), speakers also use path verbs (e.g., *exit, enter*) (Berman & Slobin, 1994; Gentner, 1982; Naigles et al., 1998; Talmy, 1985). The lexicon of path verbs available in English corresponds to verbs which have been borrowed from Romance languages. The syntactic frame of most path verbs is transitive with a direct object that surfaces as ground. But in the case of path verbs that describe general directions, the syntactic frame tends to be intransitive and is sometimes followed by prepositional phrases with nominal complements that convey ground information (Hohenstein, Naigles, Eisenberg, 2004). As to manner, speakers indicate it separately from the verb and this may yield bare path verbs. Consider the following examples of path motion descriptions.

- (3) a. *The Pink Panther left the house in a hurry.*
- b. *The Pink Panther went through the tunnel.*
- c. *The Pink Panther is leaving.*

Example (3a) is a transitive path schema with *left* describing the motion and directionality experienced by the figure (*the Pink Panther*). The nominal phrase *the house* is the location and source of the displacement. In this example, the manner of motion is marked by the prepositional phrase *in a hurry*. In example (3b), the directionality of the intransitive path verb *go* is further elaborated by the preposition *through* whose nominal complement *the tunnel* indicates ground. Finally, (3c) is a case of a path intransitive bare verb since no postverbal construction which adds information about ground or manner appears in the sentence. Worth noting is that, in formal discourse, English speakers tend to describe motion events using more path verbs than manner verbs, but if the discourse context is more colloquial, speakers use more manner verbs (Frawley, 1992, p.178). The following are a few examples of path

verbs in English: *enter, exit, ascend, descend, cross, pass, circle, advance, proceed, approach, arrive, depart, return, join, separate, part, rise, leave, near, follow.*

3.1.2 Spanish as a verb-framed language

In verb-framed languages, the main verb root conflates the act of motion and path, giving to the verb a clear sense of directionality (Slobin, 1996; Talmy, 1985, 2000). Information about manner or cause is often omitted, but if speakers need to foreground it, this information surfaces as an adjunct construction (e.g., an adverbial or gerundive). The lexicalization of motion and path—the core schema of a motion event (Talmy, 1991), is found in languages such as Spanish, those of the Semitic family, Japanese, Korean, Turkish, Tamil, Nez Perce, Caddo, and Polynesian languages. In Spanish, empirical evidence has demonstrated that descriptions of motion scenes largely conform to the motion and path typology (Aske, 1989; Berman & Slobin, 1994; Hohenstein et al., 2004; Naigles et al., 1998; Naigles & Terrazas, 1998; Özçalışkan & Slobin, 1999; Slobin, 2004; Slobin & Hoiting, 1994). The following are a few examples of path verbs in Spanish.

Spanish transitive verbs

poner 'put on', *quitar* 'take off', *meter* 'put in', *introducir* 'put in', *sacar* 'take out', *extraer* 'take out', *subir* 'lift', *bajar* 'take down', *juntar* 'put together', *separar* 'take apart'.

Spanish intransitive verbs

ir 'go', *venir* 'come', *irse* 'leave', *entrar* 'go in', *meterse* 'get in', *salir* 'exit', *salirse* 'get out', *subir* 'go up', *bajar* 'go down', *bajarse* 'get off', *caer* 'fall', *caerse* 'fall down', *juntarse* 'get/come together', *cruzar* 'go through', *atravesar* 'go across', *pasar* 'go by', *avanzar* 'go forward', *retroceder* 'go back'.

In Spanish motion schemas, the main verb can be transitive or intransitive. If transitive, the nominal complement to the verb surfaces as ground information. Aske

(1989) notes that in the case of path-based intransitive verbs, they are usually followed by locative prepositional phrases (e.g., *en la calle* 'on the street', *por el puente* 'along the bridge'), or adverbial phrases that function as directionals (e.g., *fuera de/afuera* 'outside of', *delante de/adelante* 'ahead of/in front of', *a través de* 'through'). Furthermore, the language has a set of path prepositions (e.g., *a* 'to', *de* 'from', and *para* 'to/for/towards', *hacia* 'towards', *hasta* 'up to') from which prepositions *a*, *de*, and *para* are the most pervasive path verb complements. In Spanish, sentences containing prepositional phrases headed by *a*, *para*, and *de* enhance the inherent meaning of directionality of path verbs, incorporating a telic sense to the motion description. As such, *a* and *para* phrases specify an end-point or goal reached by the figure in motion and *de* phrases the source from which it moved (ibid., 1989). Likewise, Spanish speakers also have the option of specifying details about the manner in which a path event unfolds using adverbial or gerundive constructions, but this is seldom the case. For reasons associated with cognitive demands in production and comprehension (Slobin, 2004) or rhetorical style (Berman & Slobin, 1994), Spanish speakers avoid having path verbs followed by postverbal manner constructions in the same schema. Instead, they tend to background manner completely or construe it as contextual information. In sum, the description of path events in Spanish generates a rhetorical style in which the verb root foregrounds the core schema (motion along a path) and information about the manner of motion is optional. In connected discourse, speakers often include ground information in constructions that might even precede the motion event itself. This rhetorical strategy enables speakers to produce motion descriptions which involve copious path verbs with no postverbal constructions. Speakers do not further elaborate on the path of motion and simply rely on the intrinsic directionality of path verbs to do all the semantic work (Aske, 1989; Berman & Slobin, 1994; Özçalışkan & Slobin, 1999; Slobin, 2004). Consider the following sentences that illustrate the Spanish conflation pattern:

(4) a. *La Pantera se cayó al agua.*

'The Panther fell into the water'

b. *Sacó la caja arrastrándola.*

'He took out the box dragging it'

c. *La Pantera se fue.*

'The Panther left'

In sentence (4a), the reflexive path intransitive verb *se cayó* 'fell down' describes the trajectory followed by the Panther. The postverbal *a* phrase (here conflated with the definite article to produce *al*) adds a telic interpretation to the path event, showing the water as the endpoint (or goal). No information about manner was included in this example. Sentence (4b), on the other hand, contains manner information as the present participle *arrastrando* 'dragging' specifies how the agentive figure performed the *sacó* 'took out' path motion. Finally, example (4c) is the most abbreviated and simple motion description. The meaning of *se fue* 'left' conveys a general sense of direction and since it appears as a bare verb, details about the location or manner are left unmentioned. This forces speakers to recover the information from the discourse context, whenever possible.

While Talmy proposed that path conflation reflects the general lexicalization pattern in Spanish, speakers can certainly conflate motion and manner, namely in intransitive verbs (Aske, 1989; Slobin & Hoiting, 1994). For instance, if a motion event implies a figure translocating around a location, at a location, or in a single location, Spanish speakers may describe it using a manner verb with atelic locative postverbal constructions such as *en la casa* 'in the house', *hacia el bosque* 'towards the forest', and *por el túnel* 'through the tunnel' (Aske, 1989). However, these same manner verbs are not felicitous if the schema contains a telic adverbial that signals the source or goal of the motion event (e.g., *caminó al túnel* 'walked to the tunnel'). This kind of bounded adverbial can only function as a path verb modifier in Spanish (ibid., 1989). Because the inherent meaning of manner verbs is of activities that unfold in an

unbounded span of time, they are only licensed in schemas with atelic durational adverbials, as shown in example (5):

(5) a. *La Pantera corrió cerca del puente.*

'The Panther ran near the bridge'

b. *La Pantera voló afuera.*

'The Panther flew out'

c. *La Pantera caminó hacia adentro.*

'The Panther walked inside'

In (5) the three sentences correspond to manner motion constructions. The three verb roots are activities and they are modified by different kinds of atelic postverbal constructions. In sentence (5a), the adverbial phrase *cerca del puente* 'near the bridge' functions as a locative that specifies where the figure *corrió* 'ran'. But in (5b), the meaning of *afuera* 'outside' is not a locative because it does not encode ground information; instead, it is an adverbial of directionality. Finally, (5c) shows that the locative *adentro* 'inside' is headed by a path preposition *hacia* 'toward', yielding a path adverbial construction that also expresses the direction followed by the figure.

Berman and Slobin (1994) noted a second constraint in the use of manner schemas in Spanish. Specifically, it is impossible for speakers to use manner verbs in schemas that describe figures crossing a boundary, as only path verbs can do this. Here again, the inherent *Aktionsart* seems to be responsible since manner verbs, as activities, conflict with locative adverbials that describe a boundary that a figure needs to traverse. As Kita (1999) noted, motion and manner can be lexicalized in schemas when the event does not require that a figure enters, exits, or crosses a boundary and this restriction is valid for all verb-framed languages. At a speculative level, it seems not unreasonable to think that, in Spanish, manner schemas could be used more productively. That is, Spanish speakers could lexicalize motion and a Co-event (in this case the manner of motion) more frequently to describe events which

involve the translocation of figures in time and space. The only proviso is that the schemas need to conform to the two constraints already mentioned. As explained above, the Spanish rhetorical style favours the inclusion of supporting information in the surrounding discourse context; hence, speakers frequently utter verbs with no postverbal modifiers. As in (5c), speakers often have schemas with a subject and a verb or just a verb. If locative information encoded in the form of telic adverbials needs to be mentioned, it can appear before or after the motion schema. This implies that Spanish speakers should not be deterred from resorting to manner verbs more frequently. Put differently, the Spanish language provides speakers with a rhetorical property which facilitates the use of motion verbs in clause final position (i.e., bare verbs). In this way, Spanish speakers could, at least in theory, produce numerous descriptions of motion events relying on manner verbs with no telic modifiers to avoid overriding the inherent *Aktionsart* of manner verbs. However, in the case of boundary crossing, the situation seems to be less clear. The main reason is that for the description of a motion event, the Spanish speaker is not in control of the displacement of the figure nor the direction of the movement. The speaker recreates linguistically the motion event that the figure performs to the point that if a figure crosses a boundary, the speaker has to describe it in the schema. The choice between a manner or a path verb becomes neutralized and the speaker has to lexicalize the boundary crossing with a path verb, not a manner verb. Otherwise, the speaker would override the constraint for verb-framed languages (Kita, 1999). In this sense, the latter case seems to be more restrictive in the use of manner verbs because the language does not offer alternative rhetorical mechanisms as it does for the previous constraint. In conclusion, Spanish speakers could in theory increase the use of manner verbs for the description of motion events as long as what conflicts with the inherent meaning of manner verbs is not overridden. In other words, Spanish speakers could increase the use of manner verbs either modifying them with atelic constructions or, the more expected pattern in oral discourse, uttering telic modifiers in the surrounding context, separate from the main verb.

Summarizing, this review of satellite-framed and verb-framed typologies reveals important differences in the conceptualization of motion events in English and Spanish. These crosslinguistic differences can be observed in the lexico-semantic and syntactic components of motion schemas and they should be considered as the main trends of two language types. At the lexico-semantic level, the main tendency for English is to conflate motion and manner in the main verb, whereas path can be expressed lexically or in satellite constructions. Spanish, on the other hand, conflates motion and path in the main verb and leaves manner to be optionally expressed in adjunct constructions. At the syntactic level, the tendency is for English schemas to have verbs modified by a rich set of satellites and prepositional phrases. These constructions elaborate the directionality and location of the event—elements missing in the main verb. On the other hand, Spanish schemas tend not to have motion verbs followed by postverbal modifiers, yielding more bare verbs. Information about location or manner is contextually present, but not explicitly encoded.

Talmy's theoretical proposal has been the source of many studies in the fields of linguistics and psycholinguistics. Most studies have aimed at empirically validating his motion verb typology in a wide variety of languages and involving speakers of different ages and backgrounds. In the next section, studies on the motion event typology of English and Spanish are reviewed. The information has been organized to answer the following four questions: (1) Empirical evidence support for Talmy's motion-verb typology; (2) Support for English and Spanish type languages; (3) Evidence from English and Spanish bilinguals; (4) Past studies.

3.2 Empirical evidence from studies of motion description

- 3.2.1 From a usage-based perspective, to what extent is the empirical evidence congruent with the lexico-semantic aspect of the English and Spanish typologies?

The trend observed in the literature is not unequivocal with respect to Talmy's typology. The results emanating from a variety of experiments that included picture book descriptions and animated video descriptions clearly describe English as a satellite-framed language. However, not all studies found Spanish completely consistent with the properties of a verb-framed language. Some studies suggested tendencies for speakers to provide manner descriptions which might be more important than what Talmy had recognized, albeit not always in predicate form.

Slobin (1996, 1997, 2004) and Slobin and colleagues (Berman & Slobin, 1994; Özçalışkan & Slobin, 1999; Slobin & Bocaz, 1988; Slobin & Hoiting, 1994) conducted a series of studies eliciting oral narratives from children and adult speakers of satellite-framed languages (English, German, Dutch, Mandarin, Russian) and verb-framed languages (Spanish, French, Italian, Hebrew, Turkish, and the Sign Language of the Netherlands). The evidence presented by Slobin and his colleagues stressed crosslinguistic differences and similarities that exist in the way satellite-framed and verb-framed languages map the components of motion onto the sentence. The participants in these studies told the story of the wordless picture-book, *Frog, Where Are You?* (Mayer, 1969). One of these studies was conducted by Özçalışkan and Slobin (1999) who explored the way children and adult speakers of English, Spanish, and Turkish conveyed manner in the oral narratives of the frog stories. The data, previously collected by Berman and Slobin (1994), was analyzed for the percentages of manner and path verbs across all ages and languages. Moreover, they studied the developmental progress observed among children and adult speakers. The results showed that across ages, the narratives in English were richer in frequency of manner verbs (42%), but lower in the frequency of path verbs (15%). As expected, Spanish and Turkish both showed the reverse pattern with high frequencies of path verbs (36% and 49%), but low frequencies of manner verbs (28% and 30%). Based on the verb frequencies, Özçalışkan and Slobin supported the lexico-semantic component of Talmy's typology. English speakers' verb usage was richer in manner as predicted for a satellite-framed language. But Spanish and Turkish matched the lexico-semantic aspect of verb-framed languages as speakers' verb usage was richer in path.

If the terms *types* (i.e., the different lexical items) and *tokens* (i.e., the number of repetitions of a type) are applied to observe the corpus of motion verbs in this study, in English speakers produced a total of 64 manner types and only 16 path types. Spanish and Turkish speakers also produced more manner types (34 and 46) than path types (24 and 38), although speakers of the two verb-framed languages used more path types than English. Because this study focused on the crosslinguistic differences that exist among the three languages, Özçalışkan and Slobin only emphasized the fact that the English data exhibited more manner types than the other two languages. However, they disregarded the fact that the two verb-framed languages also had a corpus with more manner types than path types. In conclusion, this study showed that speakers described motion events in accord with Talmy's typology if the data were analyzed for token frequencies. But it was contradictory if the narratives were studied for verb types.

Subsequent studies on motion descriptions applying methodological procedures that combined still images and dynamic video images partly corroborated the previous results. For example, Naigles et al. (1998) devised a crosslinguistic study (Study 1) in which adult native speakers of English and Spanish were asked to describe ten pictures of common intransitive motion events. In accordance to what Naigles et al. predicted, the results across all pictures indicated patterns of motion usage for English speakers that clearly indicated a preference for manner (mean 9.08) vs. path verbs (0.58). Spanish speakers, in contrast, revealed a pattern that was less transparent because they did not show a preference for either kind of motion conflation. Across the ten pictures, participants produced a mean of 4.58 manner verbs and 3.83 path verbs. In terms of the number of verb types, results showed a different pattern than what Naigles et al. had predicted. Results showed that from the 120 responses of the English speakers, there were 20 types (14 manner, 4 path, and 2 as other). But, the Spanish speakers used more verb types than the English speakers. From the 120 responses of the Spanish speakers, there were 28 verb types (16 manner, 8 path, and 4 as other). Naigles et al. had the same participants describe 12 dynamic videos of common intransitive motion events in writing (Study 2). The

results corroborated the trends found in the first experiment since, across the 12 videos, the English speakers clearly preferred manner verbs (mean = 10.41, SD = 1.26) over path verbs (mean = 0.77, SD = 1.06), while the Spanish speakers had a mean of 7.91 path verbs (SD = 5.87) and only 3.95 manner verbs (SD = 5.39). Moreover, the corpus of motion verbs in this experiment reflected the same preference for manner types across both groups of participants. From the 264 responses of the English speakers, there were 23 types: 17 manner verbs and 4 path verbs, and 1 as other. Likewise, from the 264 responses of the Spanish speakers, there were a total of 24 types: 12 manner verbs, 10 path verbs, and 2 as other. In this study, the Spanish speakers also produced more verb types than the English speakers.

It is interesting to note that the two experiments by Naigles et al. (1998) yielded corpora that were richer in manner types than path types as in the study by Özçalışkan and Slobin (1999). These results contradicted what Berman and Slobin (1994), Sebastian and Slobin (1994), and Slobin (1996, 2004) had argued for English and Spanish. They maintained that English as a satellite-framed language had a much larger lexicon of verb types that conflated manner and motion because the language was simply more specific about manner than Spanish was. The lack of specificity of manner in Spanish made the lexicon of the Romance language impoverished with respect to the selection of manner types. Based on the results of these three studies, there is enough evidence to raise doubts about the usage facts in Spanish. Clearly, the evidence was consistent in terms of the English corpus which contained more manner types than path types. But it was less expected that the Spanish corpus would also have more manner types than path types. It is worth noting that subsequent studies which have explored other aspects of Talmy's motion event typology have maintained similar trends for verb usage in English and Spanish monolingual speakers (for details see Hohenstein, 2005; Hohenstein et al., 2004).

3.2.2 How does the empirical evidence reflect the syntactic aspect of the English and Spanish typologies?

Regarding the syntactic aspect of the motion typology, the tendencies seem to be more in alignment with Talmy's proposal. From a series of studies by Slobin and his colleagues, the results indicated an overall tendency for motion verbs to be followed by postverbal constructions in English and, to a lesser extent, in Spanish. Slobin and Bocaz (1988) observed that, at age 3; 0, English-speaking children seldom produced motion verbs without locative particles. Instead, they uttered motion verbs with postverbal constructions which clearly indicated the trajectory followed by the figure as well as the location (e.g., *climbed up the tree*, *jumped out of the room*, *crawled on his back*). Spanish children, on the other hand, uttered motion descriptions that contained simple verbs of direction (e.g., *subir* 'climb', *caer* 'fall') followed by *a*, *en*, and *de* prepositional phrases that indicated movement towards a goal (*a* and *en*) or away from a source (*de*). But, the trajectory followed by the figure had to be inferred from the semantics of the motion clause. Likewise, Slobin (1996), reporting on the frog stories of adults, confirmed the same trend for adult English speakers. Results showed that adult English monolinguals uttered 82% of their motion verbs with a satellite (e.g., *fell down*) to specify the trajectory of motion. They also had verbs with a satellite and a prepositional phrase (e.g., *fell out of the window*, *fell down into the water*) to give details about the source or goal of the displacement (the ground). The use of postverbal constructions in the Spanish narratives was less frequent. Results indicated that only 63% of the clauses contained ground information (e.g., *se precipitan al suelo* 'they plummet to the ground', adapted from Slobin, 1996, p. 93). The use of postverbal constructions that exemplified the syntactic component of the typology defined two expressive styles. On the one hand, English speakers' motion schemas were highly specific in detail about trajectories, but less attention was paid to static descriptions. On the other hand, Spanish motion schemas specified the static locations of objects and participants in scenes, but gave less importance to the trajectories followed by the figures. These tendencies were attested in the narratives of children and adults alike.

Nevertheless, not all motion event descriptions in English and Spanish had verbs plus some kind of postverbal modifier. Slobin also found that 36% of the adult Spanish motion clauses had bare motion verbs (i.e., verbs without any kind of ground postverbal construction). The percentage in English, in contrast, was much lower with only 15% of the verbs in clause-final position. These results led Slobin to conclude that English-speaking narrators may pay more attention to path details due to the propensity of motion verbs being modified by a postverbal satellite or satellite-like construction. Naigles et al.'s (1998) results also demonstrated that Spanish speakers were more likely to produce verbs in utterance final position than did English speakers. In Study 1 (the description of drawings of common intransitive motion events), they reported that 26% of all the Spanish utterances contained a bare verb versus 8% in English. But in Study 2 (the description of dynamic videos of common intransitive motion events), the difference was even clearer as 5.7% of the Spanish utterances were produced with a bare verb while English speakers produced none. The general trend observed in the two languages was for manner verbs more than path verbs to be uttered without locative specifications. Naigles and Terrazas (1998) argued that the expression of path would seem to need a prepositional phrase to indicate that a figure *crosses*, *leaves*, or *enters* in relation to a ground. This information seems to be less necessary when describing the manner since the meaning of manner verbs requires no mention of ground to convey clearly the idea of motion.

Naigles et al. (1998) also investigated how English and Spanish speakers expressed manner in non-verbal constructions. Results from Study 1 indicated that 5% of the English utterances whose main verb was a manner verb also contained a manner modifier (e.g., prepositional phrases, adverbs, and gerunds) and 25% of all the Spanish utterances with a path verb also included a manner modifier. The interesting finding was that despite the lower percentage of manner verbs in the Spanish data (47%), speakers still expressed the manner of motion in adjunct constructions. Naigles and her colleagues concluded that, while English speakers clearly encoded the manner of motion in the main verb (91%), Spanish speakers

conveyed it through modifiers, enabling them to speak about the manner as much as 72% of the time. A similar trend was found in Study 2 as they found that Spanish speakers compensated for the lower percentage of manner in the main verb by using more manner modifiers. Results showed that Spanish speakers produced manner verbs 33% of the time (versus 88% in English), but instead 55% of their utterances contained manner in adjunct constructions. Only 31% of English speakers' utterances included manner modifiers. These results confirmed the previous findings in the sense that Spanish speakers specified the manner of motion mainly in modifier constructions, whereas English speakers lexicalized the notion of manner in the main verb. Moreover, most manner constructions appeared modifying manner verbs in English, but path verbs in Spanish as shown in Study 1.

3.2.3 What evidence is available about motion descriptions in bilingual speakers?

From the literature reviewed, there appears to be two studies which have investigated the lexicalization of motion in bilingual English-Spanish speakers. The two studies aimed to explore the extent that the crosslinguistic differences between English and Spanish could have on the bilingual construal of motion. Hohenstein, Eisenberg, and Naigles (2006), drawing on Naigles et al.'s (1998) study, explored the possibility that: (1) bilingual speakers would produce motion descriptions that reflected the English and Spanish monolingual descriptions in Naigle et al.'s (1998) study; (2) the lexical preferences for manner/path in English and Spanish was affected by the acquisition of L2 English; and (3) the age of L2 acquisition could have an effect on the crosslinguistic differences. The participants in this study were adult bilingual college students or employees in Texas. Eighteen of these bilinguals were identified as early onset bilinguals since they began to learn English as a second language before or at age 5. The other nineteen participants, the late onset bilinguals, began to learn English after age 12. In this study, participants had to describe orally in English and in Spanish, figures in motion shown in dynamic video images. Details of the methodology (material and procedure) employed is discussed in Section 3.2.4 below. The overall patterns found in this study showed that in the English mode,

bilinguals used an average of 10.19 (SD = 1.61) manner verbs and 1.65 (SD = 1.77) path verbs. In the Spanish mode, the bilingual speakers used an average of 7.22 (SD = 2.35) manner verbs and 4.49 (SD = 2.35) path verbs. Further statistical analysis confirmed that there was a preference for more manner verbs in both conditions. That is, when speaking English, participants were more likely to use a manner verb than a path verb. Likewise, when speaking Spanish, participants also used a manner verb more than a path verb. Moreover, the average of path verbs in L2 English and manner verbs in Spanish were higher than the averages of English (0.58) and Spanish (4.58) monolinguals in Naigles et al. (1998). In terms of the number of verb types, the data showed that there were more types in English (45) than in Spanish (35). There were also more manner types (32 in English, 22 in Spanish) than path types (7 in English, 11 in Spanish). Regarding the syntactic aspect, the results showed that the bilingual speakers used twice as many manner modifiers when speaking Spanish (31%) than when speaking English (14%). In both languages, participants used manner modifier phrases with path verbs. In essence, the bilingual speakers were more likely to express manner in the main verb when speaking English and in modifier phrases when speaking Spanish. As to the use of bare verbs, results indicated that there were more verbs without locative information in Spanish (19%) than in English (11%) and in the two languages, there were more manner bare verbs than path verbs. Hohenstein et al. observed that the general tendencies of these bilingual speakers were consistent with the patterns for the monolingual English and Spanish participants from Naigles et al. (1998). However, there were some interesting differences in terms of crosslinguistic transfer. For instance, all bilingual speakers produced more manner verbs than the Spanish monolinguals as well as more path verbs than the English monolinguals. In the syntactic aspect, the main differences were observed in English as the bilingual participants produced fewer manner modifiers and more bare verbs than the English monolinguals. This was interpreted as a sign of L1-to-L2 transfer. Finally, the effect that age of L2 acquisition could have on the crosslinguistic transfer revealed a situation of bi-directional transfer in the late bilinguals, but not in the early bilinguals. The results showed that late bilinguals used fewer path verbs in Spanish and more path verbs in English than did monolingual speakers. Furthermore, the

bilinguals produced more mentions of manner in general in Spanish and less in English and this difference was also bigger than monolinguals of both languages. Hohenstein et al. interpreted a bigger cross-language transfer in late bilinguals partly caused by cultural reasons because the English-speaking environment was actively offering them lexical and syntactic possibilities to construe their messages.

The study by Navarro and Nicoladis (2005) also investigated crosslinguistic effects in adult bilingual speakers, but in this study, participants were late-onset second language speakers of Spanish. The study aimed at exploring whether: (1) in connected speech advanced L2 Spanish speakers lexicalized motion following the patterns of their first language; and (2) learning to lexicalize motion in a second language implies learning to view motion scenes from the native-speaking perspective. The participants were ten L1 English-L2 adult proficient Spanish speakers from Edmonton, Canada. Moreover, there was a control group of ten native speakers from various Spanish-speaking countries. For the study, participants watched two short video excerpts of a *Pink Panther* animated cartoon and retold the stories orally in Spanish to an interviewer after viewing the videos. Detailed information about the methodology implemented is discussed in Section 3.2.4 below. A comparison of the bilingual and monolingual oral narratives for the percentages of path conflation revealed that 69% (N= 316) of all motion verbs in the L2 Spanish narrative conflated motion and path. In the L1 Spanish oral narratives, on the other hand, 80% (N= 427) of all motion verbs conflated motion and path. Further statistical analysis indicated that the native speakers did not conflate more path components than the bilinguals as the percentages were not statistically significant. In the syntactic analysis, both groups of speakers described the path of motion mostly with intransitive verbs modified by postverbal constructions. In the L2 narratives, 87% of path verbs took a prepositional phrase to indicate location but only 78% in L1 Spanish. Instead, most L1 Spanish speakers produced postverbal constructions as manner modifiers to compensate for the lower frequencies of manner verbs as Hohenstein et al. (2006) and Naigles et al. (1998) previously found. A comparison of bare motion verbs showed that 13 % of the L2 path verbs had zero postverbal

modifiers versus 22% of the monolingual path verbs. Further statistical analysis confirmed that even though the native speaker group had fewer path verbs with a postverbal modifier, they uttered significantly more bare verbs. The bilingual speakers followed the English pattern, uttering path verbs with postverbal modifiers. This was interpreted as an indication that the advanced bilinguals have not fully acquired the use of bare verbs, a property of the Spanish rhetorical style (Berman & Slobin, 1994). In sum, this study suggested that the bilingual speakers did not rely on the lexicalization patterns of English to describe motion events in Spanish. Instead, the evidence suggested that these bilinguals had achieved the Spanish *perspective* to view motion events as they clearly marked the path of motion in their schemas. The possibility of crosslinguistic interference was observed in a preference for L2 Spanish path verbs followed by postverbal modifiers. This result suggested that the participants were able to acquire the lexical aspect of the Spanish motion-event typology, but they had not fully achieved the syntactic aspect yet. Navarro and Nicoladis stressed the importance of these results since motion description is not included as a teachable subject in Spanish textbooks. Therefore, what these bilingual speakers reflected in their motion constructions was probably not the result of instructed learning; instead, they probably acquired the form-meaning mappings to express motion descriptions implicitly from the input received while communicating in Spanish.

3.2.4 What methodological procedures have been employed in studies on motion event descriptions?

Few experimental paradigms have been used to investigate motion event descriptions. In terms of stimuli, all studies have used visual images, some of them static and others dynamic. The participants included speakers of various ages and language backgrounds. The studies by Slobin and colleagues relied on the picture storybook, *Frog, Where Are You?* (Mayer, 1969). The book has 24 pictures that tell the story of a boy and his dog that looked for a frog that has escaped. Although there is no verbal text, the book has a clear plot that is rich in causal and temporal

sequences, movement from place to place, surprises, and switches of attention between the boy and the dog (Slobin & Bocaz, 1988). In these studies, participants first looked at the book while they were informed that the book was about a story. Participants could then look at the entire set of pictures and tell the story in their native language as they were looking at the book, picture by picture (Slobin, 1996). The *Frog, Where Are You?* story has been adopted as stimuli in several other studies of motion descriptions (see Papafragou, Massey, & Gleitman, 2001; Zlatev & Yangklang, 2004). The data collected by Slobin (1996, 1997, 2004) and Slobin and colleagues (Berman & Slobin, 1994; Özçalışkan & Slobin, 1999; Slobin & Bocaz, 1988; Slobin & Hoiting, 1994) included oral narratives from children and adult speakers of satellite-framed languages (English, German, Dutch, Mandarin, Russian) and verb-framed languages (Spanish, French, Italian, Hebrew, Turkish, and the Sign Language of the Netherlands).

Other studies have combined the use of static drawings and dynamic images in video format. For example, Naigles et al. (1998) used 10 black-and-white line drawings of common intransitive motion events that depicted a series of manner and path of motion. Participants looked at the pictures sequentially and had to describe what was happening in their native languages (English and Spanish). Even though only one sentence was of interest for the study, participants could extend their descriptions with no time limit. Naigles et al. also implemented a series of 12 dynamic videos of common intransitive motion events. The video stimuli were designed to have some of the images presenting path events such as motion with a clear source and goal and others depicting boundary crossing. The participants watched a video and, during a pause, they were required to answer the question "What was happening?" speaking in their first languages. Only one sentence was necessary for the study, but there was no restriction as to how much the participants could say. As part of the procedure, the Spanish-speaking participants were interviewed all together and gave their responses in writing.

The two studies on motion descriptions in bilingual speakers also employed video images. The main difference between these stimuli was the use of isolated dynamic images versus two sequences of animated video excerpts. Hohenstein et al.'s (2006) study with adult bilingual Spanish speakers, who learned English at different ages, used twelve dynamic video images as stimuli. The images depicted six paths of motion (e.g., entering, exiting, crossing) which were presented twice. Each path of motion was presented with two different manners of motion (e.g., walking, twirling, rolling). The participants were divided into two groups so that half of the participants did the experiment in English and the other half in Spanish. During the testing session, participants proceeded to watch the video images one at a time and, during a pause, had to answer "What is he/she doing?/What is happening?" in English or "¿Qué está pasando?" in Spanish. The answers were given orally. Even though participants were asked to produce one sentence per image, they were free to speak more. After a week's interval, the participants repeated the experiment in the other language. The study by Navarro and Nicoladis (2005) involved a group of adult English speakers who were also highly proficient speakers of L2 Spanish. The stimuli included two short video excerpts from a *Pink Panther* animated cartoon. The stories were silent and with a clear plot that depicted the figures in rich temporal, causal sequences, and displacement from place to place. These stories were organized in sequence and participants watched them individually and only once. After each viewing session, participants were interviewed by a native speaker of Spanish who did not know the stimuli. The participants were asked to tell the stories orally in Spanish.

Summarizing the empirical evidence presented in Sections 3.2.1 and 3.2.1, it is possible to conclude that in general the usage patterns of monolingual English and Spanish speakers are in accord with Talmy's typological proposal. The data of oral narratives collected in descriptions of static images of a picture-book (Berman & Slobin, 1994; Özçalışkan & Slobin, 1999; Slobin, 1996, 1997, 2004; Slobin & Bocaz, 1988; Slobin & Hoiting, 1994) as well as the data collected with a combination of static and dynamic visual stimuli (Naigles et al., 1998) yielded manner as the main

lexicalization pattern in English utterances. In Spanish, on the other hand, motion descriptions contained path verbs more than manner verbs, or rather the frequency of manner verbs did not exceed the frequency of path verbs (Aske, 1989; Slobin and Hoiting, 1994). Moreover, the corpora of motion types reported in the different studies showed that a higher frequency of manner types was the trend not just in English, but in Spanish as well (Naigles et al., 1998; Özçalışkan & Slobin, 1999). This conspicuous lexicalization of manner in Spanish was also evident at the syntactic level as Spanish motion schemas contained numerous instances of manner usage in the form of manner expressions. Naigles et al. (1998) observed that in Study 1, the Spanish-speaking participants used considerably fewer manner verbs than the English-speaking participants (47% vs. 91%) and the same pattern was observed in Study 2 (33% manner verbs in Spanish vs. 88% manner verbs in English). However, if manner expressions such as prepositional phrases (e.g., *en un solo pie* 'on one foot'), or gerunds (e.g., *corriendo* 'running') were added, the Spanish speakers mentioned something about the manner of motion 72% of the time in Study 1 and 79% of the time in Study 2. In this way, the high frequency of manner postverbal constructions compensated for the many fewer utterances containing manner verbs which. This tendency seems to indicate that Spanish speakers may conceptualize the manner of motion more often than what could be inferred from Talmy's (1985, 1991, 2000) study, albeit in a non-predicate form. The studies also showed that the syntax of the English schemas perfectly fits the structure of a satellite-framed language because they had manner verbs with postverbal constructions to specify mostly the trajectory of motion and ground information (Slobin, 1996). It is pertinent to ask about the extent to which frequencies of manner usage may vary depending on the stimuli of the study or there could be other factors which are yet to be discovered. What is clear is that manner is indeed present in Spanish motion schemas, but why is it that it mostly appears as adjuncts to path verbs and not as the main verb? As discussed earlier, the language does not constrain the lexicalization of manner in the main verb as long as figures move within an unbounded plane, something that in a story like *Frog, Where Are You?* or *The Pink Panther* is fairly common. Besides, speakers could avoid placing telic durational adverbials in postverbal position, not to

conflict with the meaning of manner verbs. After all, the rhetorical style of Spanish favours the use of bare verbs. As a matter of fact, the results from the different studies showed that there were more bare manner verbs than bare path verbs. As for verb types, speakers also produced more manner types than path types. In essence, the studies reviewed indicate that the preferential pattern for the description of notion events in Spanish resides at the token level, but not at the type level. In other words, the tendency for the use of the path conflation suggested by Talmy originates as Spanish speakers produce numerous repetitions of a relatively small collection of path types, but resort to a larger collection of manner types in fewer opportunities. Several questions arise as to what could motivate this linguistic pattern in Spanish speakers. Could the preference for the use of path tokens be triggered by discourse factors? If the manner as a Co-event is conflated to describe events which do not exclusively refer to motion events, could it be possible then that Spanish speakers produce a large vocabulary of manner types to describe events other than motion?

As to the evidence concerning bilingual motion descriptions reviewed in Section 3.2.3, studies showed that experienced L2 speakers can indeed reach degrees of similarities with the monolingual motion description patterns both lexically and syntactically. A closer inspection of the data, though, revealed some differences possibly caused by crosslinguistic interference. Most noticeable in Hohenstein et al.'s (2006) study was the bi-directional transfer observed in the late-onset learners of English. These bilinguals produced frequencies of path verbs that were lower than Spanish monolinguals, but higher than English monolinguals. Likewise, they encoded more manner than Spanish monolinguals, but less than L1 English speakers. Early-onset bilinguals, on the other hand, only showed an effect of L2 English on their Spanish as the frequency of path was lower than those of L1 Spanish speakers. The L2 Spanish speakers in the study by Navarro and Nicoladis (2005) presented similar degrees of proficiency in motion descriptions compared to the monolingual Spanish speakers. The possible crosslinguistic interference was observed in the frequencies of bare verb use. The L2 Spanish speakers uttered fewer bare path verbs than did the native speakers and this suggested that the L2 Spanish participants had achieved the

lexical aspect of motion verbs in the target language, but were still in progress to achieve the. The L2 oral narratives contained more instances of path followed by postverbal locatives suggesting an effect of L1 English. Finally, it is important to mention that although these studies approached the question of bilingual motion descriptions using different designs, they both yielded evidence in favour of bilingual speakers being able to encode motion with high degrees of proficiency. New studies should investigate when and how over the course of L2 acquisition, bilingual speakers learn to map, the lexico-semantic and syntactic components of motion onto clause structure as Navarro & Nicoladis (2005) suggested.

With respect to the stimuli employed in the different studies, they consisted of static and dynamic visual images. In addition, the procedure required that participants focused on one image at a time so that they could utter a description for that single image. Consider the use of the picture-book. Participants had to look at each picture in the book individually and describe what was happening to the characters of the story, while they were still looking at the individual image. Indeed, the motion event scenes were integrated into the sequence of the frog story, but participants saw them as isolated images. Likewise, Hohenstein (2005); Hohenstein et al. (2006); and Naigles et al. (1998) implemented a similar procedure for the series of dynamic video images and also static drawings in Naigles et al. (1998). Participants watched the images individually and described the kind of motion that they saw. Moreover, participants did not have to maintain the flow of a story because the images were unrelated. Conversely, the video stimuli implemented by Navarro and Nicoladis (2005) presented some interesting differences. First, their stimuli were two short fragments of cartoon movies in which the motion scenes were not viewed individually, but they were integrated into the flow of two stories. Second, participants had access to the stimuli only once, hence the oral narratives depended solely on how much each speaker could recall from the stories during the subsequent interview. Third, participants also had to control for the natural flow and accuracy of the stories as the interviewer was not familiar with them. Fourth, the participants needed to organize their motion descriptions as part of a message that was structured

as connected speech in a second language. One can appreciate that, while watching single visual images, there were, thus, some important additional cognitive demands on speakers imposed by these last stimuli, some of which went beyond the decision between a manner or a path verb.

In any case, it is clear that the two bilingual studies justify the need for more research that includes motion descriptions in a second language. Thus far, there is more knowledge on the motion typology in monolingual English and Spanish speakers (children and adults) than in bilingual speakers. The results reported in the two bilingual studies suggested that L2 speakers can lexicalize motion in levels that resemble those of native speakers. In addition, the evidence was bi-directional; that is, L2 speakers of English and L2 speakers of Spanish could equally attain high levels of native-like accuracy in their motion descriptions. This evidence encourages the development of new studies that explore the acquisition of motion typology in a second language. More specifically, it would be interesting to know how and at what stage (beginner, intermediate, advanced) L2 learners begin to incorporate into their interlanguage systems the typical motion description patterns of the second language. It is evident that an investigation of this kind would need to incorporate learners of different levels of acquisition to trace the growth of motion constructions and establish the corresponding comparisons across levels. N. Ellis (2002) noted the lack of acquisition studies that offer a longitudinal perspective of the data across time, the kind of studies more commonly performed in L1 acquisition. Regarding the methodological approaches employed in all the investigations reviewed, the results were obtained from the analysis of the data by language groups. Of course, this procedure could be expected since this is one of the more common forms of data analysis in L2 studies (Nicoladis, 2005, personal communication). However, it is possible that this form of analysis may not be sensitive enough to capture more subtle linguistic aspects of motion typology. In language-group analysis, the focus has been on counting the number of speakers who produce a given form, rather than on the number of times that each motion verbal construction was uttered and the sentence frames in which it occurred. It is possible to appreciate then that the methodology

employed in the analysis by language group may not necessarily be sensitive to capture more subtle aspect of the acquisition of the motion event typology. For this reason, a corpus study is needed to complement the language-group analysis. More specifically, a corpus analysis may be more revealing of the internal structure of motion constructions as each verbal form has to be studied individually as a type, as a token, and in its collocations in sentences. In this way, the lexicalization patterns would be established more directly on natural production data. N. Ellis (2002) stressed the potential contribution of corpus studies in second language research for shedding some light on the impact of type and token frequency in SLA. Gass and Mackey (2002, p. 250) expressed the view that discussions of learners' sensitivity to input features have been a common theme in the field of SLA, but the issue of frequency of patterns in the input seems to have been investigated less systematically. This is particularly relevant for new studies in bilingual motion descriptions if high levels of achievement can happen implicitly, as Navarro and Nicoladis (2005) suggested. A corpus analysis may give some indication as to how motion is acquired from exposure to high frequency of input as studies on implicit learning showed (Beretta & Davies, 1985; De Jong, 2005; De Keyser, 1995; Lightbown, 1992; Long et al., 1998; Terrell et al., 1980; Williams, 2005). But frequency of language forms in the input is not the only source of implicit learning. Production also results in implicit learning. Supporters of a usage-based approach maintain that learners implicitly abstract the form-function mappings as a result of learning thousands of constructions and detecting their internal patterns (N. Ellis, 2002). A crucial next step in the ongoing debate and investigation of frequency effects in SLA is the design of more inclusive studies that extend over time. Gass and Mackey (2002, p. 257) stressed the need for longitudinal studies of the effects of input frequency and L2 learning outcomes that also involve learners at different stages and consider the role of the first language.

3.3 The present study

This study investigates language acquisition relating to motion events in learners of Spanish as a second language whose first language is English. The study aims at expanding the line of research delineated by Navarro and Nicoladis (2005). Motion event descriptions in English and Spanish present interesting crosslinguistic differences at the lexico-semantic and syntactic levels as originally anticipated by Talmy (1985, 1991, 2000) and corroborated by abundant empirical evidence in monolingual speakers of both languages (Berman & Slobin, 1994; Naigles et al., 1998; Naigles & Terrazas, 1998; Özçalışkan & Slobin, 1999; Slobin, 1996, 1997, 2004; Slobin & Bocaz, 1988; Slobin & Hoiting, 1994). In a nutshell, the lexico-semantic differences are manifested in a tendency for English speakers to conflate motion and manner; this explains the propensity for manner verbs in English motion schemas (e.g., *The Pink Panther ran out of the house*). For Spanish speakers, the focus of attention is less on the manner of motion than on the path of motion (the core event). This explains the tendency for path verbs in motion schemas (e.g., *La Pantera Rosa salió de la casa* 'The Pink Panther went out of the house'). Syntactically, the English motion schemas have the main verb modified by postverbal constructions specifying path through satellites (e.g., *ran out*), ground information in prepositional phrases (e.g., *of the house*) and, at a lesser extent, manner information through manner expressions (e.g., *The Pink Panther ran out of the house dragging a rope*). In Spanish, motion schemas contain postverbal constructions which specify manner information (e.g., *La Pantera salió corriendo* 'The Pink Panther went out running') or ground information (e.g., *La Pantera Rosa salió de la casa*). Spanish, however, has a strong tendency to have motion schemas with zero postverbal modifying constructions (e.g., *La Pantera Rosa salió* 'The Pink Panther went out'). To date, our knowledge of motion event descriptions in bilingual speakers is limited; thus, the present investigation makes a contribution to our understanding of crosslinguistic differences in motion event descriptions in learners of Spanish as a second language.

From an acquisition point of view, this investigation is a cross-sectional study (Gass & Selinker, 2001), because it incorporated L2 learners from the Spanish language program at the University of Alberta who were at three different proficiency levels: beginner, intermediate, and advanced. In this way, it was possible to track how and when learners begin to develop the Spanish motion event descriptions in their interlanguages. As such, this investigation helps to meet the current need for more studies that present a view of L2 language change in time as an effect of input frequency as advocated by N. Ellis (2002) and Gass and Mackey (2002). The absence of explicit instruction of the meaning-form mapping of motion verbs in Spanish either during the experiment or in the syllabus of the program made this an investigation into implicit learning. According to the course objectives and contents which guided the Spanish program in the Department of Modern Languages and Cultural Studies of the University of Alberta at the time of the study, motion event descriptions in Spanish did not constitute a teachable content (see Appendix 1 with the objectives of the program). In other words, the programs did not include in their syllabus pedagogical rules for learning how to express motion at the sentence level. By the same token, teachers were not expected to elaborate on contrastive differences in verbalization of the concept between Spanish and other languages, or teach how native speakers resort to one lexicalization of concepts more frequently than others in a language. When a concept is included in the teaching syllabus (e.g., tense), learners receive explicit instruction on the different ways the notion is expressed and they also learn to recognize that some expressions are more common than others. But in the case of motion, learners had to discover the formal mapping patterns as they experienced the language in a communicative context. Furthermore, a review of a series of textbooks that teach Spanish also showed that pedagogical rules about the lexicalization of motion event descriptions at the sentence level were not included in the lists of contents (see Appendix 2 for details about the textbooks reviewed). Furthermore, it is necessary to indicate that learners do not produce an ungrammatical utterance by not choosing the preferred lexicalization pattern of the target-language, so they may have fewer cues to evaluate the appropriateness of their language production. For example, if Spanish learners produce motion event descriptions

conflating motion and manner, this does not mean that the constructions would be grammatically incorrect. Indeed, the constructions would deviate from the tendency to conflate the path of motion in Spanish (i.e., the preferred lexicalization pattern); thus, learners may sound rather "odd" to a proficient Spanish speaker. However, the choice of the manner instead of the path of motion does not have any bearing on the syntactic well-formedness of the constructions. It is perhaps rather unlikely then that a Spanish teacher would ask a learner to substitute a manner verb for a path verb to have a motion event description "sound" more Spanish-like if the sentence is grammatically correct.

The present study was divided into two tasks: a receptive task and a production task. The receptive task involved the use of dynamic video images to motivate participants to select the sentences that to them read more naturally as descriptions of the motion events. The oral production task was implemented using the same stimuli and procedure of Navarro and Nicoladis (2005). Thus, this study complemented the data elicitation methods from previous work because participants described dynamic motion images (Hohenstein, 2005; Hohenstein et al., 2006; Naigles et al., 1998, Naigles & Terrazas, 1998; Navarro & Nicoladis, 2005) within the frame of a storyline (Berman & Slobin, 1994; Özçalışkan & Slobin, 1999; Slobin, 1996, 1997, 2004; Slobin & Bocaz, 1988; Slobin & Hoiting, 1994). The data of oral narratives were first analyzed by language group. In addition, the data were studied using some procedures applied in corpus linguistic studies (Biber, 1999; Biber, Conrad, & Reppen, 1998; McEmery & Wilson, 1996) and that have also been implemented in acquisition (Rice, 1999) and in the phonology-syntax interface (Bybee, 1995; Bybee & Hopper, 2001; Bybee & Thompson, 1997). The corpus of motion verbs was studied for the frequency of types and tokens, as well as the frequency and kind of postverbal modifiers.

3.3.1 Hypotheses

The hypotheses that motivated this study have been organized into two groups. In the first group, four hypotheses investigated how learners lexicalize path and manner verbs in motion descriptions in L2 Spanish and in L1 English. Two hypotheses address the lexicalizations of motion verbs at the receptive level and two hypotheses address the lexicalization of motion verbs in oral production. In the second group, three hypotheses addressed specific aspects related to the syntactic structures of motion descriptions in oral production.

3.3.1.1. Hypotheses into the nature of the lexico-semantic aspect of motion event descriptions in Spanish as a second language

The preferred lexicalization pattern in written motion descriptions in Spanish.

Studies on the description of motion events in English and Spanish have shown that there is an asymmetry in the production of path and manner verbs (Hohenstein et al., 2006; Naigles et al., 1998; Özçalışkan and Slobin, 1999; *inter alia*). In addition, it is accepted that in acquisition, receptive vocabulary precedes productive vocabulary and is also larger in scope (Melka, 1982, 1987; Waring, 1999). It is likely that learners become more sensitive to the expression of motion in written Spanish as proficiency in the second language increases, with more advanced learners resembling native-like patterns. It is hypothesized that:

- 1(a) All L2 Spanish learners will select higher percentages of path verbs in motion descriptions written in Spanish than in English.
- 1(b) The advanced learners will demonstrate a preference for path verbs in written motion event descriptions in percentages that approximate those of the L1 Spanish speakers.

The production of motion descriptions in oral Spanish.

Empirical evidence has shown that in oral discourse, Spanish speakers, more so than English speakers, describe motion events using path verbs (Berman & Slobin,

1994; Naigles et al., 1998; Slobin, 2004; *inter alias*). This entails that path verbs more than manner verbs is the target of acquisition in oral Spanish. In the absence of pedagogical rules on motion event description in instructed Spanish, L1 English-L2 Spanish learners probably acquire the target-lexicalization pattern proportionally to their exposure and production of the second language. Then it is hypothesized that:

- 2(a) Learners—across levels—will produce higher percentages of path verb types in the L2 Spanish vocabulary as well as in higher percentages of path verb tokens in the L2 Spanish oral production, but not in the English vocabulary or usage.
- 2(b) More advanced Spanish learners will produce percentages of path verb types and verb tokens in oral Spanish that approximate those of the L1 Spanish speakers.

3.3.1.2. Hypotheses to study the syntactic aspect of motion event descriptions in Spanish as a second language

Aske (1989) indicated that telic postverbal modifiers help Spanish speakers to enhance the directionality of path verbs, specifying the goal (e.g., *a* 'to', *para* 'to/towards', *hasta* 'up to/as far as' phrases) reached by figures in motion or the source (e.g., *de* 'off/of' and *desde* 'from' phrases) from which they move. It is likely that learners—from early on—hear, read, and talk about motion events using path verbs more often than manner with goal and source modifiers due to the pervasiveness of path verbs in oral Spanish (Berman & Slobin, 1994; Naigles et al., 1998; Slobin, 2004; *inter alias*). Then it is hypothesized that:

- 3(a) L2 Spanish learners, across levels, will produce higher percentages of path verb tokens than manner verb tokens with *a* 'to', *para* 'to/towards', *hasta* 'up to/as far as' phrases to express the goal of a motion event.
- 3(b) L2 Spanish learners, across levels, will produce higher percentages of path verb tokens than manner verb tokens with *de* 'off/of' and *desde* 'from' phrases to express the source of a motion event.

Experimental evidence has demonstrated that, unlike English speakers, Spanish speakers mention the manner of motion in manner expressions (e.g., adverbials, gerunds, phrases) with path verbs and—to a lesser extent—with manner verbs (Naigles et al., 1998). This suggests that path verbs with manner expressions is the target construction and L1 English-L2 Spanish learners probably acquire this aspect of the syntax of motion verbs proportionally to their exposure and production of the second language. Then it is hypothesized that:

4. Advanced learners, but not beginner or intermediate learners, will produce percentages of path verbs with manner modifiers which approximate those of the native-Spanish speakers.

Empirical evidence has demonstrated that in oral discourse, Spanish speakers, more so than English speakers, tend to produce manner verbs with no postverbal modifiers (Berman & Slobin, 1994; Naigles et al., 1998; Slobin, 2004; *inter alias*). Probably, as L1 English-L2 Spanish learners hear and speak more Spanish, they gradually rely on this rhetorical feature of the second language. Then it is hypothesized that:

- 5(a) The L2 Spanish oral narratives—across levels—will contain higher percentages of bare manner verbs than bare path verbs.
- 5(b) The use of bare verbs by the advanced learners will approximate to the percentage of bare verb use by the L1 Spanish speakers in terms of higher percentages of manner verbs with no postverbal modifiers than path verbs with no postverbal modifiers.

Chapter 4: Method

4.1 Participants

The participants in this study were native speakers of English and students from the University of Alberta. At the time of study, all the participants were enrolled in the Spanish program offered by the Department of Modern Languages and Cultural Studies at this university. A total of sixty students at the beginner, intermediate and advanced level participated. The participants were organized as follows: 20 students from the beginner level (13 females and 7 males, mean age 24.35 years, $SD = 5.08$); 20 students from the intermediate level (17 females and 3 males, mean age 21.4 years, $SD = 2.60$); 20 students from the advanced level (10 females and 10 males, mean age 24.15 years, $SD = 6.85$). According to the objectives of the program, learners developed the four language skills (listening, reading, writing, and speaking) with an emphasis on oral communication in Spanish. Before completing the experiments, all participants read and signed a consent form and filled out a personal information questionnaire. Both documents were available in English and Spanish and participants could choose the language of their preference to complete the documents (see Appendix 3 and 4). In the case of those participants who felt comfortable reading and writing in Spanish, they completed the consent form and the questionnaire in Spanish. Moreover, participants received \$5 and a token of appreciation for their participation in the study.

In addition, there was a native-group comparison composed of twenty native Spanish speakers and highly proficient in English (10 females, 10 males), mean age 28.65 years ($SD = 7.01$). These participants were students from different programs at the University of Alberta (75%) and professionals in various fields (25%). Fourteen of the native speakers (70%) were from Mexico and six (30%) had come to Canada from other Spanish-speaking countries. At the time of study, all of the participants were residing in Edmonton, Alberta. Before their participation in the study, all the Spanish-speaking participants read and signed a consent form and filled out a

personal information questionnaire in Spanish (see Appendix 3). All participants received \$5 and a token of appreciation for their participation in the study. In what follows, relevant information collected in the personal information questionnaires is presented. The aim is to offer a more complete description of the population sample of the study.

Level 100 participants

1. Time of testing. From the total of twenty participants at level 100, 95% (N = 19) of them were tested in different days in late June, 2004. There was only one participant (5%) who was tested in early April, 2004.
2. Course level. 95% (N = 19) of participants were attending Spanish 111 that was being taught in the spring term and only one (5%) participant was completing Spanish 112 in the winter term.
3. Other languages spoken. 40% (N = 8) of participants indicated that they did not speak any other language other than English. But 30% (N = 6) of the participants indicated that they spoke French at different levels of frequency, whereas 30% (N = 6) spoke other languages such as Spanish, Japanese, Polish, Anishinabe, and Arabic.
4. Previous Spanish instruction. 90% (N = 18) of the twenty participants had not studied Spanish before enrolling in the program. Only 10% (N = 2) of the participants had received some Spanish instruction which ranged from six to nine months.
5. Visits to Spanish-speaking countries. 75% (N = 15) of participants had not been to a Spanish-speaking country. Only 25% (N = 5) of the participants had experienced visits to Spanish-speaking countries which did not extend over two weeks.
6. Speak Spanish outside the classroom. 90% (N = 18) of the total of participants did not speak Spanish outside the classroom and only 10% (N = 2) used it occasionally with friends and customers at work.

Level 200 participants

1. Time of testing. Of the total of twenty participants at level 200, 55% (N = 11) of them were tested in various dates during the month of March, 2004. Moreover, 30% (N = 6) of the participants were tested between April 2nd and 8th, 2004. Finally, 15% (N= 3) were tested between the June 8th and 11th, 2004.
2. Course level. 85% (N = 17) of the participants were attending Spanish 212, the second course of the intermediate level taught in the winter term. The 15% (N = 3) of participants tested in June were enrolled in the first course of the intermediate level—SPAN 211—taught in the spring term.
3. Other languages spoken. Of the 20 participants, 70% (N = 14) spoke other languages apart from English. All of them indicated that they spoke French. In addition, there was 1 (5%) participant who spoke Portuguese, 1 (5%) participant who spoke Italian and 1 (5%) participant who spoke Farsi, Portuguese and German. There were 3 (15%) participants who did not answer.
4. Previous Spanish instruction. Of the 20 participants, 50% (N = 10) had studied Spanish at the University of Alberta (6 had studied for one year, 2 had studied for two years, 1 had studied for four years, and 1 did not indicate the length of time). Moreover, 25% (N = 5) studied at different places and for lengths of time that varied from a month up to 2 years. Also, 15% (N = 3) of the participants had had up to a maximum of three years of Spanish instruction in High school. Finally, there was one participant (5%) who studied Spanish for three years in High School plus one year at university. There was only 1 (5%) participant who did not give any information about previous Spanish instruction.
5. Visits to Spanish-speaking countries. Of the 20 participants, 65% (N = 13) had been to different Spanish-speaking countries for periods of time which extended from a week up to 7 months. Moreover, 35% (N= 7) of the participants indicated that they had not visited a Spanish-speaking country.
6. Speak Spanish outside the classroom. Of the 20 participants, 10% (N = 2) indicated that they seldom spoke Spanish with friends and customers. In addition, 80% (N = 16) of participants only spoke Spanish in class time and there were 2 (10%) participants who did not respond the question.

Level 300 participants

1. Time of testing. From a total of twenty participants, 80% (N = 16) were tested in different days in March, 2004 while they were about to complete the level. 20% (N = 4) were tested in early April, 2004 as they were also about to complete the level.
2. Course level. Based on the dates the advanced learners were tested, they were all in the process of completing the Spanish 300 level. Recall that this level, unlike the beginner and intermediate levels, is not divided in two courses.
3. Other languages spoken. 45% (N = 9) of participants indicated that they did not speak other languages, but 30% (N = 6) spoke French at different levels of frequency. In addition, 25% (N = 5) of the participants spoke other languages such as Portuguese, Italian, German, and Japanese.
4. Previous Spanish instruction. Of the 20 participants, 95% (N = 19) indicated that they had studied Spanish before (11 studied at the University of Alberta and other places, 3 studied in various Spanish-speaking countries, 2 in the United States, 1 at the University of Toronto, 1 only in High School, and 1 participant did not specify). Moreover, there was one participant (5%) who did not respond.
5. Visits to Spanish-speaking countries. 90% (N = 18) of the participants indicated that they had visited different Spanish-speaking countries for a minimum of one week to a maximum of two years. But, 10% (N = 2) of the participants answered negatively.
6. Speak Spanish outside the classroom. 20% (N = 4) of the participants indicated that for various reasons they spoke Spanish daily, 30% (N = 6) indicated that they sometimes spoke Spanish with friends, but 40% (N = 8) indicated that they only spoke the language in class. There was 1 (5%) participant who responded negatively and 1 (5%) participant who did not answer the question.

Native-group comparison

1. Time of testing. The twenty Spanish-speaking participants were interviewed in different dates during the month of February, 2004.

2. Level of education. From a total of participants, 40% (N = 8) had completed an undergraduate degree in various specialties. In addition, 35% (N = 7) of the participants were enrolled in different PhD programs and 25% (N = 5) were enrolled in different Master's programs at the University of Alberta.
3. Other languages spoken. 70% (N = 14) of the participants indicated that they only spoke English as a second language, but 10% (N = 2) could speak English, French and German. There was 1 (5%) participant who spoke German and English and 1 (5%) participant who spoke French and English. 2 (10%) participants did not respond.

4.1.1 The recruitment of participants

For the recruitment of participants, the experimenter implemented the following procedure: (a) personal visits to classes from the three levels of the program (Spanish 112, Spanish 212, Spanish 300) during the month of February, 2004. The aim was to talk about the study and invite native-English speakers from these levels to participate; (b) written signs were posted in different locations of the university campus to inform about the study and invite native-English speakers studying in the Spanish Program at the University of Alberta to participate; (c) electronic messages were sent through the University of Alberta International Student website to inform about the study and invite native-English speakers studying in the Spanish Program at the University of Alberta to participate. The response from students at the intermediate and advanced levels was prompt and this contrasted greatly with the lack of interest from students at the beginner level. This lack of response from the beginner learners, in part, affected the original design of the study in terms of time. Considering that one of the experiments required oral production in Spanish, it was decided that the recruitment should take place by the end of the term, when the beginner learners would be finishing Spanish 112. As the term came to an end and there were almost no participants from this level, it was necessary to wait and visit classes from Spanish 111 (Spring term) to inform them about the study and invite native-English speakers to participate. It is important to mention that some

levels of the program are divided into a first course and a second course, with the second course being the continuation and expansion of the first one. For example, those students who were in the first year in the program belonged to the beginner level which was divided into Spanish 111 (the first course) and Spanish 112 (the second course); for the intermediate students, the level was divided in Spanish 211 (the first course) and Spanish 212 (the second course). But for those students in Spanish 300, the advanced level is not further divided. For the purpose of the present study, the levels of the program are identified as Level 100 (first year, beginner level), Level 200 (second year, intermediate level), and Level 300 (third year, advanced level).

In general, the participants who responded to the invitation contacted the experimenter personally, by phone, or electronically, so as to confirm their participation in the study. This first contact between the experimenter and participants also served to arrange the time and date for the testing session. The experimenter informed the participants that there were two possible locations on campus to conduct the experiments: a laboratory in the Department of Psychology or a classroom in the Department of Linguistics. The participants chose the place that was more convenient for them. Although no records were kept, most first-time interactions between the participants and the experimenter were conducted in English. It is also important to mention that the participants were not formally assessed on their levels of proficiency in Spanish using any form of written or audio-written language test.

4.1.2 The sampling of the experimental groups

The experimental groups were formed on a self-selection basis of learners who were attending the three levels of the Spanish program which were of interest for the study. That is, all beginner learners who were in Spanish 111 or 112 and volunteered formed level 100, all volunteers who were in Spanish 211 or 212 formed level 200, and all volunteers from the advanced level (Spanish 300) formed level 300. It is acknowledged that although this form of sampling was simple and

straightforward, the possibility for biases should not be ignored. For example, the learners who were in 111 knew comparatively less Spanish than most participants who were finishing the second course of a level (e.g., 112 and 212). But as mentioned earlier, the lack of response from students in Spanish 112 made the inclusion of learners in Spanish 111 inevitable. At the intermediate level, the distribution of participants was more even because, as it will be shown below, 85% (N= 17) of the participants belonged to Spanish 212. In a sense, the experimental level 200 was formed by learners who, at least in principle, had a similar command of Spanish. The situation with the advanced learners was different because 100% of the participants were completing the same level. In this sense, the configuration of level 300 showed more consistency than the other two groups. However, the distribution of the sample population by gender showed the most difference at level 100 and level 200, but not at level 300. From the total of beginner level participants, 65% were female and 85% of the intermediate level participants were females. By contrast, the distribution of the participants by gender at level 300 was completely even: 50% females and 50% males. It remains to be seen what effect gender could have in terms of the acquisition of motion event descriptions in L2 Spanish, a topic that is beyond the scope of the present investigation.

4.1.3 The native-group comparison

An important methodological difficulty was the decision to form the control group with bilingual Spanish speakers living in an English-speaking environment. Ideally, the native-control group should have been formed by Spanish speakers (monolinguals or bilinguals) who were living in a Spanish-speaking environment. Efforts to contact monolingual speakers among the Spanish-speaking communities in Edmonton (e.g., the Mexican community, the Chilean community and the community from El Salvador) were to no avail. After sending an invitation to participate in the study, only nine Spanish-speaking speakers responded; however, none of them declared using Spanish as the only language of communication. Instead, the nine speakers indicated that they alternated between English and Spanish for their daily

interaction. Spanish was the preferred language for family and social interaction, whereas English was spoken in the work environment and in various other activities. Furthermore, only four speakers from the total number of respondents could be included in the study. The remaining five speakers had to be discarded as they did not match the experimental group. They exceeded the average age of the experimental group and they did not have post-secondary education either.

A second factor which had a bearing on the final conformation of the control group was the limited financial resources available. The experimenter could not afford traveling to a Spanish-speaking country to recruit speakers who could be a good experimental match. For this reason and acknowledging the effect on the generalization of the results, the formation of the control group with bilingual Spanish speakers living in Edmonton and mostly associated to the University of Alberta was considered the more acceptable solution within the constraints of the investigation.

4.2 Tasks

The study involved the use of two tasks: a receptive task and a production task. The two tasks incorporated dynamic images in video format as visual stimuli. This technique has proven to be very effective for the elicitation of motion descriptions (Hohenstein et al., 2006; Naigles et al., 1998; Naigles & Terrazas, 1998; Navarro & Nicoladis, 2004, 2005). Dynamic images offer participants a more accurate depiction of a motion event which, in turn, may trigger a more natural description of it. By contrast, static images (e.g., picture stories, drawings) involve less transparent representations of an event and it is not unusual that participants have to infer the act of motion from otherwise static images (Naigles et al., 1998).

4.2.1 The receptive task

The goal of the receptive task was to determine the *naturalness* of the phrasing of written motion descriptions. More specifically, after viewing a series of 20 dynamic video clips of motion events, participants had to decide whether the accompanying written descriptions read more naturally if written with path verbs or manner verbs. The video images—selected from a variety of sources—had no sound and they depicted animate and inanimate figures performing a wide range of differently mannered motion (e.g., turning, walking, flying, riding, running) and with different paths of motion (e.g., going up, leaving, coming into, falling, crossing boundaries). The images were evenly distributed in ten manner scenes and ten path scenes organized in a random sequence and according to only one order. That is, all participants watched the twenty images in the same order since the groups were counterbalanced for the language in which they would first complete the task. The visual stimuli were projected on a television screen with an interval of three seconds between images. It is important to mention that the visual stimulus was prepared by the experimenter considering the resources available and the simplicity with which the images depicted the path or the manner of motion. By no means, was the visual stimuli designed to exhaust the range of dynamic scenes that could be included nor could it avoid the inclusion of motion scenes with a low degree of naturalness (e.g., 2, 3, 5, 9, 11, 17, and 20). It is clear that in a subsequent study which considers the use of the dynamic video clips employed in the receptive task should consider a revision of some motion scenes as well as improve the graphic quality. In this way, it would be possible to offer participants a more realistic and accurate visual stimuli than the one implemented in this opportunity.

TABLE 1
Dynamic Motion Events

Video	Motion Event	Conflation Pattern
1	Two women walking up a series of steps	manner
2	Plane crashing against a glass	manner
3	Hand turning a nipple on a bottle	manner
4	Little plane flying into a room	manner
5	Man taking sugar from a bowl	path
6	Man riding a scooter	manner
7	Men passing through a hole on a wall	path
8	Fishes swimming away	manner
9	Hand taking a ticket from a parking machine	path
10	Airplane taking off	path
11	Man with basket on top of him escaping	path
12	Man jumping from a tower	manner
13	Little plane going around a building	path
14	Man leaving a room	path
15	Man carrying a yellow surfing board leaves	path
16	Children running away	manner
17	Children throwing a ball	manner
18	Bus stopping at a bus stop	path
19	Man crossing a street	path
20	Magician inserting a sword into a box	manner

The written instrument that accompanied the viewing of the video clips consisted of twenty pairs of sentences to describe each motion event. There were two versions of the instrument: one written in Spanish and one written in English (see Appendix 5 and Appendix 6). Both versions of the instrument had the same format and arranged the written motion descriptions according to the order of presentation of the video images. In both versions of the instrument, the motion descriptions appeared as alternatives (a) and (b). All sentences were syntactically well-formed and they read as synonymous statements of how Spanish and English speakers could describe the video images. The difference in the pairs of descriptors lay in the verbal form in which motion was lexicalized. For example, if in sentence (a) the act of motion was lexicalized in a manner verb, sentence (b)—being semantically synonymous—lexicalized the motion event in a path verb. The order of presentation

of the alternatives containing a manner or a path verb was at random. That is, alternative (a) could be a manner sentence and alternative (b) a path sentence as descriptions for a given visual image, but, for the next visual image, the manner and path sentences could be in the reverse order (i.e., alternative (a) a path sentence, alternative (b) a manner sentence). Consider video scene 4 in which a little plane flies into a room. In alternative (a), participants read "The plane came into the room"; in alternative (b), participants read "The plane flew into the room". Both sentences conveyed a similar message about a plane that displaced into the room. The sentences differed in how the displacement was lexicalized in the main verb. While alternative (a) indicated the movement of the plane in a path verb, alternative (b) conveyed the same idea in a manner verb.

4.2.2 The production task

The production task aimed at having participants talk about motion descriptions in L2 Spanish and in English. The task was divided in two parts: a video screening and a story-telling. For the screening session, there were two video excerpts from a *Pink Panther* animated cartoon. The excerpts lasted 2 minutes each and they were presented in a sequential order relative to the entire story. Although these videos were silent, the story had a clear plot that was rich in temporal, causal sequences, and displacement from place to places. It is important to stress that the stimuli did not present motion events featured as individual and unrelated occurrences; instead, participants could watch the displacements of the figures integrated into the context of a storyline. In the first story, there was an animated cuckoo clock that the Pink Panther had purchased to wake him up in the morning. The strong sense of responsibility to have the Panther get up on time in the morning gave rise to a series of adventurous and antagonistic situations between the cuckoo clock and the Panther. In the second story, the Panther found himself struggling to control a jet plane that surprisingly took on a life on its own and had the Panther at its mercy. As to the story-telling sessions, they consisted of individual oral interviews between the participants and interviewers who were native-speakers of Spanish and English,

respectively. During the story-telling, participants narrated at length the two Pink Panther stories, but only relying on the amount of information they could recall at the time of testing. In other words, participants, at no point, could watch the stimuli again in order to complete the task. The format of the oral narratives allowed participants to produce motion event descriptions integrated into sequences of connected speech. Moreover, participants could compose the oral narratives in whichever way was more suitable for them and with no time limits. It is important to mention though that unlike the dynamic video images employed in the receptive task which allowed for a balanced presentation of path and manner motion events, the stimulus employed in the oral production task did not allow for that. The sequences of path and manner of motion performed by the Pink Panther and the other two characters were already contained in the original source from which the two excerpts were selected. Thus, the experimenter could not control for an even distribution of visual sequences which depicted the path and the manner of motion. Likewise, there was less possibility to control for the clarity and accuracy with which the images depicted both kinds of motion events. The motion event images were packaged in a much larger sequence which was not created for the specific experimental purpose the stimulus in the receptive task was. This entails that some of the motion event sequences of the Pink Panther could be less transparent in their interpretation as a path or a manner motion.

4.3 Procedure

On the day and time agreed to conduct the testing session, the experimenter greeted and addressed the participants in Spanish to verify that they were in fact enrolled in the Spanish program at the University of Alberta. The experimenter asked the participants to identify the class level they attended and give the name of their language instructor. In this way, the experimenter could briefly obtain some information about the level of comprehension and oral production of each participant. Unless there were clear signs of lack of comprehension or fatigue on the part of the participant which indicated the need to switch into English, the experimenter continued addressing the participant in Spanish. Although no records

were kept, the majority of the sessions which involved the advanced learners were entirely conducted in Spanish. That is, the information to verify the student's level in the program, name of the instructor, information about some documents that needed to be filled in before the experiments, instructions to complete the experiments, transitions between the experiments, as well as general comments were all communicated in Spanish. With the rest of the participants, the communication in Spanish between the experimenter and the participants at time of testing tended to vary with the beginner learners mostly relying on English. In other words, after the experimenter formulated the preliminary questions to verify the level of Spanish and name of the instructor, the experimenter continued speaking with the participants in English. In this way, the participants learned about the documents that needed to be filled in before the experiments, received the instructions for the completion of the experiments, as well as exchanged general comments during and after the experiments always speaking in their first language.

The testing sessions were conducted by the experimenter and proceeded according to a similar format. First, the experimenter randomly assigned the order in which the participants would complete the receptive and productions tasks. Second, the experimenter randomly assigned the language in which participants would begin to complete the experiments, considering that there would be an equal number of participants beginning the experiments in Spanish and in English. In the end, half of the participants first completed the experiments in Spanish, while the other half did it in English. This strategy was implemented to counterbalance the group for the language factor to, at least in theory, diminish the risk of order effects that could arise if the same language order (e.g., Spanish first – English second or vice versa) were maintained for all participants. Learners across the three L2 Spanish levels completed the receptive and production tasks in the two languages. The native-speaker group completed both tasks in Spanish but not in English. As mentioned earlier, there were two possible locations to conduct the experimental sessions and participants chose according to their convenience between a laboratory of the Department of Psychology and a classroom of the Department of Linguistics at the University of Alberta.

4.3.1 Procedure for the receptive task

In the receptive task, the experimenter first indicated that participants were going to watch twenty dynamic video clips. In addition, participants received a copy of the score sheet which contained the 2 alternative motion descriptions of the video clips written in the language they were going to begin first. The experimenter explicitly instructed the participants that the twenty pairs of sentences were possible ways to describe the individual video images. The experimenter also indicated that participants were expected to select the alternatives that to them read as the most "natural" description of the motion scenes in the video clips. Participants were also informed that the written motion descriptions were all syntactically correct; therefore, they did not need to judge the grammaticality of the statements. The task proceeded by having participants watch the video clips and during a three-second interval; they circled the alternative of their choice in the score sheet. Participants performed the same procedure until they watched the twenty video clips and selected the corresponding alternatives in the score sheet. Once participants completed the task in one language, they repeated the same task, following the same procedures, but in the other language. Most participants managed to watch the images and complete the written instrument within the time allocated. However, for those participants who required extra time, longer pauses were allowed between images. In average, the participants took between eight to ten minutes to complete the receptive task in each language. Moreover, for those participants who needed to watch a scene again, the video was replayed. When participants had problems with the meaning of words or expressions in the Spanish written descriptions the experimenter provided them with the necessary translation. It is necessary to indicate that for those participants who needed assistance with the vocabulary, the items were not discarded. Although the risk of introducing a bias was possible, the words that required translation did not involve any verbal form. Instead, the words that needed translation from Spanish into English were nouns such as *el vidrio* 'the glass', *el chupete* 'the nipple', *la mamadera* 'the bottle', *el hueco* 'the hole'.

4.3.2 Procedure for the oral production task

For the production task, participants watched the two video excerpts once. After watching the excerpts, participants were individually invited to tell the stories orally to native speaker interviewers of Spanish and English, respectively. The experimenter, who is a native speaker of Spanish, did not perform any of the oral interviews. For this reason, in each testing session, there was always a native speaker of English and a native speaker of Spanish available to perform the oral interviews. In addition, neither the experimenter nor the interviewers remained with the participants during the video screening session; instead, they waited outside the room. Only when the video excerpts were over, the experimenter went into the room and introduced the interviewer of the language the participant was going to speak first. The language in which a participant produced the oral narratives followed the same order in which s/he completed the receptive task. That is, if a participant completed the receptive task in Spanish first, the story-telling was first in Spanish and then in English. In the end, half of the participants completed the oral production in Spanish first and the other half second. This strategy was implemented to counterbalance the group for the language factor to, at least in theory, diminish the risk of order effects that could arise if the same language order (e.g., Spanish first – English second or vice versa) were maintained for all participants. Before beginning the oral interviews, all participants receive the following instruction “Please, tell me what you saw in the two stories of the Pink Panther.” Moreover, the experimenter explained to all participants that they could speak about the stories as much as they wanted to without worrying about making mistakes. This latter instruction was particularly important for lower-level learners whose command of oral Spanish was more limited. Moreover, the experimenter indicated to each participant that the interviewer had not previously watched the stories; consequently, s/he was not familiar with them. Once the experimenter instructed the participants on the task and made sure that they had no doubts and were feeling comfortable, the experimenter left the room. This means that the participants produced the oral interviews alone with the interviewer of each respective language. The story-telling sessions were videotaped and there was no time

limit for their completion; however, most participants spoke for an average of seven minutes in each oral narrative. Once the participants finished telling the stories in the language which was first assigned, the interviewer advised the experimenter so that the native speaker interviewer of the language the participant had to speak second came into the room. At this moment, the interviewer also came into the room to introduce the new interviewer and verify that the participant was feeling comfortable. Immediately after, the experimenter left the room again and waited outside. This means that same as in the interview in the language the participant needed to speak first, the second interview also took place between the participant and the interviewer alone.

It was a constant procedure to conclude the testing session that participants were invited to ask questions about any aspect of the study and received a token of appreciation for their participation. It is important to reiterate that the language the experimenter used to interact with the participants during the testing session, for the most part, remained constant throughout the session. That is, if a participant was able to continue interacting in Spanish after the introductory questions, the case of level 300 and some level 200 participants, the rest of the session unfolded in Spanish (e.g., instructions, general comments between experiments, final greetings, etc.). With other participants, the interaction between the experimenter and participants unfolded entirely in English or switched between Spanish and English.

4.4 Coding for the production task

Categorizing verbs into their conflation patterns may be challenging for a coder. Some verbs are less transparent in their meaning; thus, their classification as path or manner verb could be ambiguous. In order to make the coding process more rigorous and reliable, a list of 54 verb types in Spanish and 83 verb types in English collected in previous studies by Navarro and Nicoladis (2004, 2005) were **compiled** and used to compose the guides for coding. The verbs had been already classified following Talmy (1985, 1991, 2000). But, for the effect of establishing them as a

coding guide, the verbs were submitted to a new analysis of their conflation pattern as path or manner verbs. With this aim, a group of 77 undergraduate students from Universidad de Santiago in Chile (46 males and 31 females, mean age 20.16 years, $SD = 2.27$) were asked to read and classify the verbs after receiving the following explanation. Individually, students were informed that some verbs of motion are *more specific* because their meaning indicates the notion of movement as well as the specific kind of movement. They were told that these verbs are recognized as manner verbs. Thus, if they considered that a verb from one of the lists was descriptive, they needed to write a tick in the corresponding cell under the column label M (i.e., manner). Moreover, students were also told that other verbs are considered *less specific*, because their meaning only indicates movement without specifying the kind of movement. These verbs are recognized as path verbs. Participants were instructed that if they considered any verb from the lists as less descriptive, they had to write a tick in the corresponding cell under the column P (i.e., path). With these explanations plus four examples of sentences containing path verbs and four sentences containing manner verbs, the student-participants proceeded to examine the verbs. Since the list of verbs was long (54 types), the verbs were divided in two lists of 27 words each (see Appendix 7 (1) and (2) for Instrument used in the reanalysis; Appendix 9 Guide for coding the Spanish data). Participants completed both lists. The same procedure was implemented for the reanalysis of the list of 83 English verbs. A group of 50 undergraduate students (20 males, 30 females, mean age 21.05, $SD = 2.01$) from Laurentian University in Canada were asked to complete the written instrument which had the same **design** as the Spanish one. The verbs were divided into two lists of 42 and 41 verbs each and students completed both lists (see Appendix 8 (1) and (2) for Instrument used in the reanalysis; Appendix 10 Guide for coding the English data). Likewise, a simplified explanation of Talmy's typology and supporting examples were also provided before students classified the verbs. Thus, individually, students were informed that some verbs of motion are *more specific* because their meaning indicates the notion of movement as well as the specific kind of movement. They were told that these verbs are recognized as manner verbs. Thus, if they considered that a verb from one of the lists was descriptive, they needed to write a

tick in the corresponding cell under the column label M (i.e., manner). Moreover, students were also told that other verbs are considered *less specific*, because their meaning only indicates movement without specifying the kind of movement. These verbs are recognized as path verbs. Participants were instructed that if they considered any verb from the lists as less descriptive, they had to write a tick in the corresponding cell under the column P (i.e., path). With these explanations plus four examples of sentences containing path verbs and four sentences containing manner verbs, the student-participants proceeded to examine the verbs.

A total of 80 oral narratives in Spanish (60 L2 Spanish and 20 L1 Spanish) were transcribed by the experimenter and coded using an experimenter-created coding system which followed the conventions of CHAT, and it was compatible with the CLAN analysis programme (MacWhinney, 2000). The coding system incorporated the basic notions of the lexico-semantic and syntactic aspects of the motion event typology (Aske, 1989; Berman & Slobin, 1994; Slobin & Hoiting, 1994; Talmy, 1985, 1991, 2000). Table 2 shows the specific categories considered for coding. Since the verb is the single morpheme which allows establishing crosslinguistic comparisons for the kinds of lexicalization patterns (Talmy, 1985, 2000) of interest in this study, the main verbs of utterances were considered for coding as path or manner verbs. The term utterance should be understood as any natural unit of speech which appeared bounded by a pause (Aronoff & Rees-Miller, 2001). Coding of the main verb of utterances has also been the procedure implemented in previous studies (Hohenstein et al., 2006; Naigles et al., 1998; Navarro & Nicoladis, 2005). In the case of verbal forms which appeared in subordinated clauses, truncated clauses, immediate repetitions of the same verb and unclear cases were not considered for coding. The no inclusion of some data source was an important methodological difficulty because of the effect this may have on the generalization of the results as it will be further discussed in Chapter 6. However, by concentrating on the verbal forms of main clauses, the coding system was kept more straightforward. For the syntactic aspect of the typology, all constructions which appeared modifying the main verb were coded as goal modifiers, source modifiers,

and manner modifiers. Moreover, in those utterances in which there was no construction following the main verb, the verb was coded as a bare verb.

TABLE 2
Coding System for the Spanish Narratives

CATEGORIES

Lexicalization patterns:	Path/Manner
Goal modifiers	<i>a/para/hasta</i>
Source modifiers	<i>de/desde</i>
Manner modifiers	Gerundives/adverbs/phrases
Bare verbs	Ø

A total of 60 oral narratives in English (20 narratives at level 100, 20 narratives at level 200, and 20 narratives at level 300) were transcribed by the experimenter and coded using an experimenter-created coding system which followed the conventions of CHAT, and it was compatible with the CLAN analysis programme (MacWhinney, 2000). The coding system incorporated the basic notions of the lexico-semantic aspects of the motion event typology (Berman & Slobin, 1994; Slobin & Hoiting, 1994; Talmy, 1985, 1991, 2000). Recall that the group of 20 native-Spanish speakers did not complete either the receptive or production tasks in English. Table 3 shows a breakdown of the categories considered for coding. The coding of the English data followed a similar criterion as in the Spanish data. That is, the main verbs of utterances were coded as path or manner verbs because these are the single morphemes which allow establishing crosslinguistic comparisons for the lexicalization patterns (Talmy, 1985, 2000) under study. In this case, utterances should also be considered as any natural unit of speech which appeared bounded by a pause (Aronoff & Rees-Miller, 2001). Like in the case of the Spanish data, previous studies have also considered coding of the main verb of utterances in English (Hohenstein et al., 2006; Naigles et al., 1998; Navarro & Nicoladis, 2004). In addition, any particle which appeared following the main verb (e.g., *back*, *out*, *away*)

were coded as satellites. As a result of concentrating on the verbal forms of main clauses, verbal forms which appeared in subordinated clauses, truncated clauses, immediate repetitions of the same verb and unclear cases were not coded. The no inclusion of data source also created a methodological difficulty which gave rise to some possible effects on the generalization of the findings. However, this strategy helped keep the coding system for coding the data more straightforward. Notice that this time the English data were only coded for the verbal forms as path and manner verbs (i.e., the patterns of conflation) since this was the information needed for a comparative analysis with the Spanish data. However, there was no further coding or analysis of the English data for the postverbal constructions modifying the motion verbs (i.e., the goal/source modifiers, manner expressions, etc.)'

TABLE 3
Coding System for the English Narratives

CATEGORIES

Lexicalization patterns:	Path/Manner
Satellites	<i>back, out, down, etc.</i>

4.5 Procedures for the analysis of oral production data

For the analysis of the data produced in the oral narratives in L1 Spanish, L2 Spanish, and L1 English, two methods were employed: language-group analysis and corpus analysis. In the language-group analysis, the language patterns were determined by the sum of path and manner types and tokens produced by each member of the group which as a whole determined the patterns of the language group. This form of analysis, typically implemented in studies in second language, has also been employed in the investigation of motion event descriptions reviewed earlier. By contrast, the method of database analysis offered a direct access to the verbal choices as verbs were organized in databases of path and manner types and tokens. All databases had the same structure and classified the verbs as verb types, verb tokens,

and number of speakers. For example, all motion verbs from each group were listed as path or manner in agreement with their respective coding. In the *Type* column, all first appearances of verbs in the data were registered, meaning that this word was a single verb in the corpus. In the *Tokens* column, all repetitions of type were recorded. In the *Speakers* column, the number of participants who produced each type and its corresponding tokens were registered. Consider Table 4 which presents two samples from the L1 Spanish corpus. Under path verbs, *caer* 'fall' was a single type in the corpus and it was produced 18 times by 14 different speakers; *devolverse* 'come back' was also a single type, uttered in 10 different contexts by 5 different speakers. Under manner verbs, *agarrar* 'grab' was a type with 33 tokens and uttered by 15 speakers; whereas *amarrar* was a type with 9 tokens and uttered by 7 speakers.

TABLE 4
Sample of L1 Spanish corpus

Path verbs

Spanish types	English Gloss	Tokens	# Speakers
<i>caerse</i>	'fall down'	18	14
<i>devolverse</i>	'come back'	10	5

Manner verbs

Spanish types	English Gloss	Tokens	# Speakers
<i>agarrar</i>	'grab'	33	15
<i>amarrar</i>	'tie'	9	7

4.6 Procedure for the analysis of postverbal constructions in the Spanish data

Of special interest for this study were the intransitive verbs which appeared modified by postverbal constructions expressing information about the goal of motion (e.g., *a* 'to', *para* 'to/towards', *hasta* 'up to/as far as'), the origin of motion (e.g., *de* 'off/of' *desde* 'from'), and the manner of motion (e.g., adverbs, gerunds, manner expressions). In the case of tokens with more than one postverbal construction, only the construction that was closest to the main verb was considered. There was also a category that included verbs with zero postverbal modifiers, meaning that speakers omitted a modifier because the discourse context already contained such information. In this analysis, transitive motion types were not further studied for their nominal ground complements. An important methodological difficulty involved intransitive verbs with modifiers that deviated from the target-forms. For example, if the meaning of an *a* phrase as a goal modifier was semantically at odds with the meaning of the verb (e.g., *salió a la casa* 'went out to the house'); the phrase could not be considered a goal modifier. The meaning of *salir* 'exit' calls for a modifier which conveys the idea of motion to an unbounded area (e.g., *al jardín* 'to the garden'); however, the prepositional phrase *a la casa* 'to the house' indicates that the motion event leads to a bounded area. For the phrase *a la casa* 'to the house' to be considered as a goal modifier, it would need to modify a verb such as *ir* 'go' (e.g., *ir a la casa* 'go to the house') or *correr* 'run' (e.g., *correr a la casa* 'run to the house'). For this reason, the *a* phrase could not be considered as a goal modifier when modifying the verb *salir* 'exit'. Therefore, it would be incorrect to code this phrase as a goal modifier. An alternative analysis for phrases which deviate from the target pattern would be to code them as "errors" and incorporate them onto the analysis of the results under that category. However, being this a first approach to the acquisition of the syntax of motion verbs in L1 English-L2 Spanish learners at different levels of proficiency, it was decided that leaving deviant postverbal modifiers without coding was more beneficial, because it helped keep the coding more straightforward and lowered the risk of confounding factors in the data analysis.

Chapter 5: Results and Discussion

This chapter contains the results of the analyses performed on the L2 Spanish data, the English data, and the L1 Spanish data to explore the hypotheses that motivated this study. The chapter is divided into two sections. The first part addresses all questions concerning the acquisition of the lexico-semantic aspect of the typology with results from the receptive task and production task. The second part deals with questions pertaining to the syntactic aspect of the typology and the results corresponding to the production task. Finally, some possible cases of crosslinguistic interference from English (the participants' first language) into the L2 Spanish motion event conflation patterns are also discussed.

5.1 The lexico-semantic aspect of the motion event typology in the receptive modality

The following analysis addressed hypothesis (1a) regarding the possibility that L2 learners will select higher percentages of path verbs in motion descriptions written in Spanish than in English. Figure 1 shows the percentages of path verbs chosen in the receptive task in English and L2 Spanish. From 400 responses collected in each group, the percentages were calculated as the number of path verbs out of the total number of path and manner verbs. In the English condition, L1 English learners of L2 Spanish at level 100 obtained a mean of 35% (SD = 11.11%) path verbs, level 200 learners a mean of 37% (SD = 9.65%) path verbs, and learners at level 300 a mean of 35% (SD = 7.36%) path verbs. In the Spanish condition, results showed that L1 English learners of L2 Spanish selected more sentences with path verbs than in their first language. At level 100, learners produced a mean of 47% (SD = 10.17%) path verbs, level 200 learners produced a mean of 47% (SD = 10.79%) path verbs, and level 300 learners produced a mean of 57% (SD = 11.15%) path verbs. Clearly, the 20 video scenes of the receptive task elicited very different choices of path verbs when the L2 Spanish learners read motion descriptions written in Spanish and in English. Notice that in this task, there were an equal number of data points in each group; and yet, the results were still analyzed as percentages. This decision responded to the idea

that percentages offer an immediate insight into the proportional distribution of the responses in the task. The use of raw numbers would have required that, at some level, they would need some form of conversion in order to establish comparisons. Furthermore and in the absence of extreme values or a skewed distribution of the data, it was not justifiable to use any kind of transformation (e.g., arcsin, logarithm) of the original scores into another metric in which the distribution would be more nearly normal (Glass & Hopkins, 1996, pp. 94).

A two-way (Language x L2 Proficiency) ANOVA with Language as a repeated measure compared the means of path verbs in L2 Spanish and English across the three levels. The result showed that there was a significant main effect for Language, $F(1,57) = 70.96$, $p < .001$. The test also showed that the effect of proficiency was marginally significant, $F(2,57) = 2.45$, $p = .10$. Moreover, there was a significant Language x L2 Proficiency interaction, $F(2,57) = 4.60$, $p < 0.02$. The interaction could be due to the big difference in path verbs between English (34.75%) and Spanish (56.75%) at level 300. A Tukey test of multiple comparisons is displayed in Appendix (11) and shows that there are no statistically discernable differences between the three groups. It is important to indicate that the decision to use the ANOVA test with a repeated-measures design responds to the idea that each participant was tested at all levels of the Language factor (the dependent measures) and received a single percent score in each cell (Myers & Well, 1995). With the aim of exploring the main effect of Language, a series of three paired t -tests were conducted to compare the distribution of means of path in L2 Spanish and English within each group. At level 100, there was a significant difference between the English and the L2 Spanish means of path verbs, $t(19) = 3.9$, $p < 0.001$. Likewise, there was a significant difference at level 200, $t(19) = 3.5$, $p < 0.002$. At level 300, learners overwhelmingly chose more sentences with path verbs when they read motion descriptions written in L2 Spanish than in L1 English, $t(19) = 7.08$, $p < 0.001$. Taken together, these results upheld hypothesis (1a) because L2 learners chose higher percentages of path verbs when they read motion descriptions written in Spanish compared with English. This tendency was already observed at the beginner level and

it remained steady at the intermediate level. But with further exposure to the second language, the advanced learners yielded more robust evidence of a preference for the path of motion in written Spanish and—to a lesser extent—when motion descriptions were written in English.

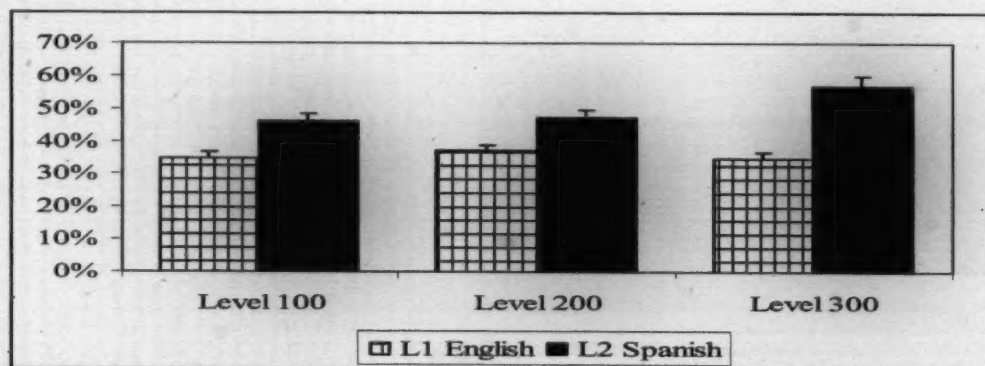


FIG. 1. Percentages of path types in the receptive task across the three groups of L2 Spanish and English.

A new analysis was performed in order to investigate whether similar trends for the L2 Spanish learners—in particular level 300—would be maintained if compared to the L1 Spanish results. More specifically, hypothesis (1b) predicted that the advanced learners will demonstrate a preference for motion event descriptions with path verbs in percentages that approximate those of the L1 Spanish speakers. Notice that the native-speaker group obtained a mean of 53% (SD = 08.01) path verbs from the 400 responses collected. Results of a one-way ANOVA that compared the percentages of path verbs across the three levels of L2 Spanish and the L1 Spanish group was significant, $F(3,76) = 4.77, p > .004$. A Tukey test of multiple comparisons is displayed in Appendix (12) and shows that the source of the difference was between level 300 and the other two L2 Spanish levels ($p < .013$), but not with the L1 Spanish speakers ($p = .645$). This result confirmed that both levels 100 and 200 selected more sentences with manner verbs than level 300 or the native Spanish speakers. Conversely, the advanced learners and the native speakers chose more motion descriptions that contained path verbs than the beginner and intermediate

learners. Furthermore, an independent *t*-test confirmed that there was a marginally significant difference in the means of the path verbs for levels 100, 200 and the L1 Spanish group, $t(38) = 2.08, p < .044$. That is, the native speakers, like level 300 learners, chose fewer motion descriptions with manner verbs than learners at levels 100 and 200. Put differently, when the results of level 300 learners (the ones with the more experience listening to and reading in Spanish) are compared with the results of the native-speaker group, the advanced learners showed target-like patterns in the receptive task as was predicted. The evidence clearly indicated that level 300 learners chose sentences with path verbs in percentages that equalled those of the L1 Spanish speakers. This means that written motion descriptions with path verbs read as naturally to level 300 learners as they did to the native speakers. In turn, the less experienced learners presented a pattern that went just in the opposite direction. They selected more English-like sentences with manner verbs than path verbs in L2 Spanish. This latter result could be interpreted as a possible crosslinguistic interference of English because their preference for manner in L2 Spanish resembled the results in the English condition. As mentioned above, the decision to use the ANOVA test with a repeated-measures design responds to the idea that each participant was tested at all levels of the Language factor (the dependent measures) and received a single percent score in each cell (Myers & Well, 1995).

5.2. The lexico-semantic aspect of the motion typology in oral production

5.2.1 Language-group analysis and corpus analysis of path types and tokens in L2 Spanish and English

In order to address the two hypotheses that investigated the oral production of motion descriptions, the data of path types and tokens in the sixty narratives in L2 Spanish, the sixty narratives in English, and the twenty narratives in L1 Spanish were analyzed as language-groups and then as a corpus of verbs. Addressing the same hypotheses using two methods offered the opportunity to observe whether there

would be convergent patterns of L2 acquisition. This section begins with a report of the language-group analysis and then the corpus analysis to address hypothesis (2a).

Language-group analysis

In hypothesis (2a) it was predicted that learners—across levels—will produce higher percentages of path verb types in the L2 Spanish vocabulary as well as in higher percentages of path tokens in L2 Spanish oral production, but not in the English vocabulary or usage. Figure 2 shows the average percent use of path types produced by participants in the sixty oral narratives in L2 Spanish and sixty oral narratives in English. These percentages were calculated as the number of path types out of the total number of path and manner types that participants produced in each language group. The graph shows that level 100 participants produced a mean of 60% ($SD = 22.46$) from a total of 123 path types in their second language narratives. In their English narratives, they produced a mean of 44% ($SD = 11.66$) from a total of 231 path verb types. The intermediate level participants produced seven percent more path types in the L2 Spanish narratives than the beginner learners. From a total of 168 types, level 200 participants had a mean of 67% ($SD = 15.28$) path verbs. But in their oral narratives in English, they produced on average the same percentage of path as the level 100 group, 44% ($SD = 12.86$) from a total of 326 types. The mean of path in the L2 Spanish oral narratives at level 300, on the other hand, was slightly smaller than the intermediate group. Figure 2 indicates that the advanced group produced a mean of 64% ($SD = 14.55$) path verbs from a total of 203 types. In other words, the advanced learners had 3.55% more manner types in their second language narratives than the intermediate group. The mean of path found in the English narratives at level 300 was slightly larger than the other two levels. From a total of 306 types, participants produced a mean of 47% ($SD = 12.38$) path types versus the 44% reported for the beginner and intermediate groups respectively. This result indicates that in the narratives told in their mother tongue, the group of advanced learners incorporated fewer manner types than level 100 and 200. In the absence of extreme values or a skewed distribution of the data, it was not justifiable to use any kind of

transformation (e.g., arcsin, logarithm) of the original scores into another metric in which the distribution would be more nearly normal (Glass & Hopkins, 1996, pp. 94). For a complete view of the language-group results by types in L2 Spanish and English see Appendix 13 level 100; Appendix 14 level 200, Appendix 15 level 300.

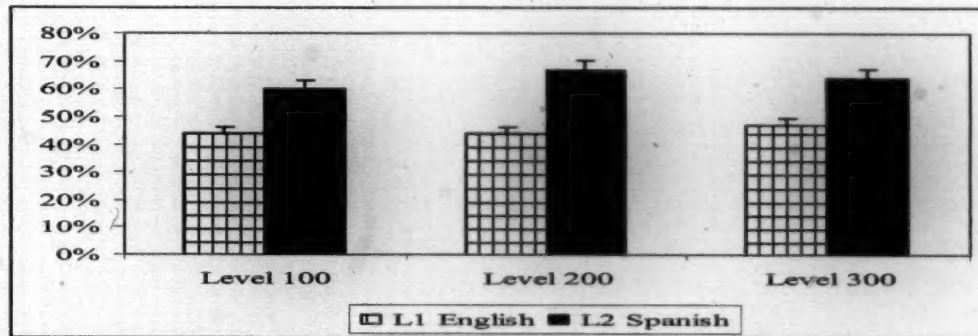


FIG. 2. Language-group analysis: Percentages of path types in the oral narratives across the three groups of L2 Spanish and English.

A two-way (Language x L2 Proficiency) ANOVA with language as a repeated measure compared the means of path types from the three levels of L2 Spanish and their respective narratives in English. Results from the ANOVA output indicated that there was a significant effect for Language, $F(1,57) = 55.39, p < .001$. However, there was neither an effect for Proficiency, $F(2,57) = .55, p = .58$, nor for the interaction Language x L2 Proficiency, $F(2, 57) = .78, p = .47$. In other words, as a language group, the learners produced a verbal vocabulary that contained more path types in L2 Spanish narratives than in the vocabulary of the English narratives, as was predicted. A Tukey test of multiple comparisons is displayed in Appendix 16 and shows that there are no statistically discernable differences between the three groups. That is, there were no differences in the proportion of path types between the more advanced and the less advanced learners. Instead, the evidence suggests that the variability of the path type estimates between L2 Spanish and English could be a within-groups effect rather than a between-groups effect. As in the receptive task, the decision to use the ANOVA with a *repeated-measures* design responds to the idea

that each participant was tested at all levels of the Language factor (the dependent measures) and received a single percent score in each cell (see Myers & Well, 1995).

As to the production of path tokens in the oral narratives in L2 Spanish and English, Figure 3 below shows the percentages of tokens elicited in the sixty oral narratives in L2 Spanish and sixty oral narratives in English. At level 100, learners produced a mean of 64% (SD = 24.48%) path from a total of 179 tokens in L2 Spanish and a mean of 56% (SD = 13.19) from a total of 367 tokens in the English narratives. At level 200, learners produced a mean of 71% (SD = 18.46) from a total of 308 path tokens in L2 Spanish and a mean of 59% (SD = 10.99%) from a total of 583 tokens in the English narratives. The advanced learners had a mean of 68% (SD = 16.85) path from a total of 347 tokens in the L2 Spanish narratives and a mean of 58% (SD = 12.29) from a total of 569 path tokens in the English narratives. For a complete view of the language-group results by tokens in L2 Spanish and English see Appendix 17 level 100, Appendix 18 level 200, and Appendix 19 level 300.

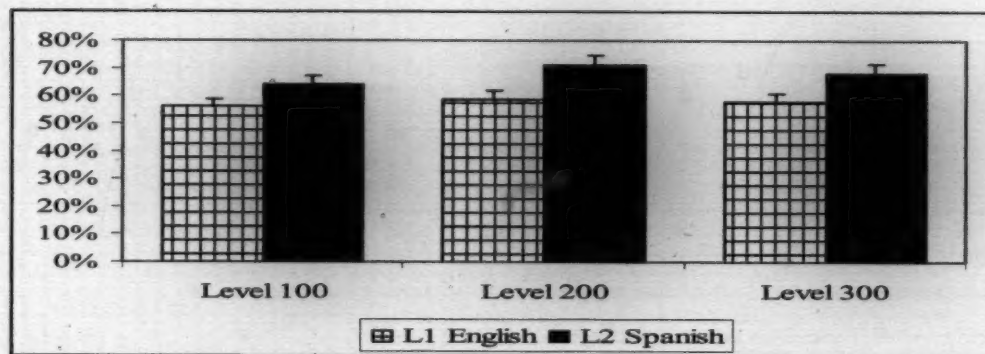


FIG. 3. Language-group analysis: Percentages of path tokens in the oral narratives across the three groups of L2 Spanish and English.

A Two-way (Language x L2 Proficiency) ANOVA with Language as a repeated measure was produced to compare the means of path tokens from the three groups of L2 Spanish and English. The output revealed that there was a main effect for Language [$F(1,57) = 13.37, p < .001$], but not for Proficiency [$F(2,57) = 1.110, p = .34$] nor the interaction Language x L2 Proficiency [$F(2,57) = .14, p = .87$]. That is,

speakers produced more repetitions of path verbs when they were telling the stories in L2 Spanish than in English, as predicted. Likewise, proficiency in L2 Spanish was not significant nor was the interaction between the two factors. A Tukey test of multiple comparisons is displayed in Appendix (20) and shows that there are no statistically discernable differences between the three groups. Thus, the variability in the means of path tokens seemed to be a within-groups effect rather than a between-groups effect. As mentioned earlier, the decision to use the ANOVA with a *repeated-measures* design responds to the idea that each participant was tested at all levels of the Language factor (the dependent measures) and received a single percent score in each cell (see Myers & Well, 1995).

Corpus analysis

The following is the analysis performed on the sixty narratives in L2 Spanish and the sixty narratives in English as databases of path and manner types and tokens. The aim of this analysis was also to explore hypothesis (2a) which predicted higher percentages of path types and tokens in L2 Spanish than in English. For a complete view of the L2 Spanish databases see Appendix 21 (1) for level 100; Appendix 22 (1) for level 200; and Appendix 23 (1) for level 300. Figure 4 presents the percent of path verb types in the corpus of the three levels of L2 Spanish and English. In the twenty oral narratives in L2 Spanish, Level 100 participants produced a total of 41 motion verbs from which 63% (N=26) were path types and in the twenty narratives in English, they produced 68 motion types from which 34% (N=23) were path types. At level 200, there was a total of 43 motion verbs in the L2 Spanish database from which 56% (N=24) were path types; whereas from the 80 verbs in the English corpus, 37% (N=30) were path types. The corpus of level 300 in L2 Spanish presented a match in proportions of path and manner types. From a total of 50 verb types, 50% (N= 25) were path, but from the 89 motion verbs in English, 38% (N=34) were path types. Clearly, when the totals were compared, there were more path types in the L2 Spanish databases than in the English ones. This trend was consistently observed at the three proficiency levels in the same way, results of the language-group analyses showed.

That is, the L2 Spanish corpus at level 100 showed higher percentages of path types in L2 Spanish than in English, following the trends observed at the intermediate and advanced learners.

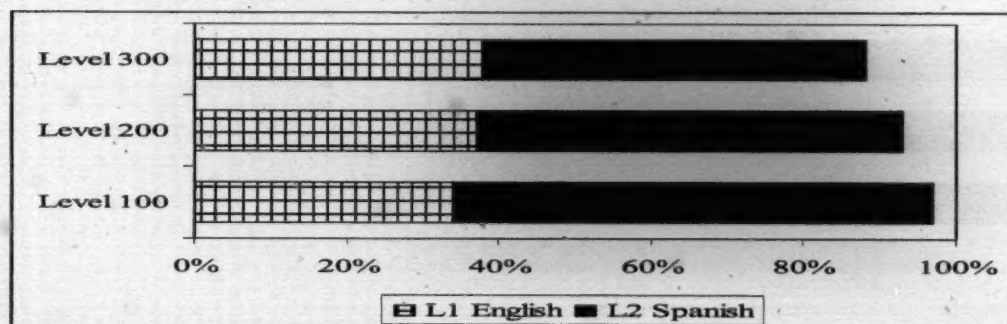


FIG. 4. Corpus analysis: Percentages of path types in the oral narratives across the three L2 Spanish and the English databases.

Regarding the distribution of path tokens, results corroborated the patterns for more path in the L2 Spanish corpus than in English observed in the language-groups analysis. Figure 5 shows that from a total of 179 tokens in the L2 Spanish at level 100, 63% (N=113) were path, whereas 56% (N=206) of the 367 tokens in English were path. At level 200, the L2 Spanish database had a total of 308 tokens and 71% (N=218) were path; whereas 59% (N=346) out of 583 tokens in English, were path verbs. Finally, at level 300 there was a total of 347 tokens in L2 Spanish and 68% (N=237) were path, while 58% (N=332) out of 569 tokens in English were path (see Appendix 21 (2) for level 100; Appendix 22 (2) for level 200; and Appendix 23 (2) for level 300). As already mentioned, the databases of motion tokens in the second language clearly showed that there were more path tokens than in the English databases upholding what was predicted in hypothesis (2a).

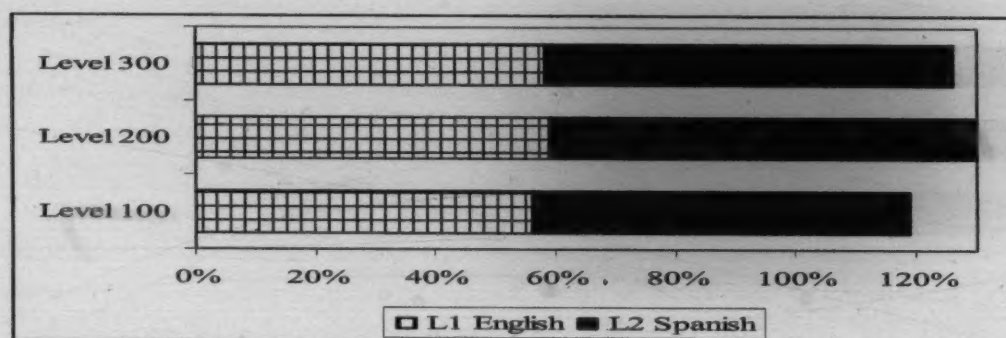


FIG. 5. Corpus analysis: Percentages of path tokens in the oral narratives across the three L2 Spanish and the English databases.

In sum, the results of the language-group analysis and corpus analysis on the L2 Spanish and English oral narratives overall supported hypothesis (2a). In oral production, the second language learners described the displacement of figures stressing the path of motion in L2 Spanish significantly more than they did in English. In the vocabulary of the three levels of L2 Spanish, quantified first in terms of the number of participants who produced them and then as a collection of verbs, results demonstrated that there were more path types in the second language narratives than in the English narratives. Moreover, the patterns of path-usage in oral production did not deviate from the patterns in the vocabulary. Across levels, L2 Spanish learners showed an overall tendency for producing more path tokens when they told the stories of the Pink Panther in the second language than in the first language. In the language-group analysis, the ANOVA test indicated that levels of proficiency were not a significant effect since learners across all levels uttered more path tokens in Spanish than in English. At this point, it becomes interesting to know whether the patterns of lexicalization shown by the L2 learners, particularly those who have been exposed to more input frequency, reflected the patterns exhibited by the L1 Spanish speakers in the oral narratives. In what follows, results of the comparison of path (types and tokens) in L2 Spanish and L1 Spanish to address hypothesis (2b) are reported.

5.2.2 Language-group analysis and corpus analysis of path types and tokens in L2 Spanish and L1 Spanish

In hypothesis (2b), it was predicted that more advanced learners will produce percentages of path types and tokens in oral Spanish that approximate those of the L1 Spanish speakers. In order to explore this possibility, results of the L2 Spanish data and L1 Spanish data were first submitted to a language-group analysis and then to a corpus analysis.

Language-group analysis

In the previous analysis which compared the oral production of path types and tokens in L2 Spanish and L1 English, the evidence indicated that all L1 English L2 learners of Spanish produced more path types in the vocabulary collected in the oral narratives in the second language than in the vocabulary collected in the English oral narratives ($p < .001$). Considering this information, a subsequent analysis compared the percentages of path types of the L2 Spanish vocabulary and L1 Spanish vocabulary. Of particular interest in this new analysis was to determine whether the L2 learners across levels would show a similar absence of difference shown before, or whether the more advanced learners could assimilate to the target pattern more closely as predicted. Notice that the results of the native-speaker group indicated that from a total of 362 types, 57.93% ($SD = 12.45$) were path types (see Appendix 24 for a complete view of the L1 Spanish language-group results by types). Results of a one-way ANOVA indicated that there were no significant differences among the L2 Spanish means and the L1 Spanish means of path types, $F(3, 76) = 1.20$, $p = .32$. A Tukey test of multiple comparisons displayed in Appendix 25 and shows that there are no statistically discernable differences between the three groups. In other words, when the lexicon of types was analyzed by language-groups, the vocabulary in L1 Spanish did not contain more path types (and by default no more manner types) than the vocabulary across the three L2 Spanish groups. Even in the case of learners who had less experience with the second language, this analysis showed that their

proportions of path types were comparable to the native-speaker results. In short, the proportions of level 300 learners did not resemble the target pattern more than the other two groups did.

Next, the means of L2 Spanish path tokens by language groups were compared to the L1 Spanish means. As reported earlier, the trends observed in the frequency of path tokens in L2 Spanish and English overwhelmingly determined a preference for more path in the L2 Spanish narratives and there were no differences in the proportions of tokens across the L2 levels. Therefore, the next analysis aimed at exploring whether the L2 Spanish learners presented a similar absence of difference if compared with the L1 Spanish group, or, instead, level 300 would resemble native-like trends as predicted in hypothesis (2b). Notice that from a total of 630 tokens, the native speakers produced 66% (SD = 12.24) path tokens (see Appendix 24 for a complete view of the L1 Spanish language-group results by tokens). A one-way ANOVA comparing path tokens across the three L2 Spanish groups and the L1 Spanish confirmed that there were no significant differences, $F(3, 76) = .66, p = .58$. A Tukey test of multiple comparisons is displayed in Appendix 26 and shows that there are no statistically discernable differences between the three groups. That is, when telling the stories of the Pink Panther, the native speakers of Spanish did not produce more tokens than the second language learners. In this sense, the language-groups analysis of path tokens was similar to the analysis of path types because learners, across levels, exhibited behaviour that was similar to the native speaker pattern. Particularly important for the hypothesis in question was to confirm that proficiency did not have an effect on token production either. This means that the advanced learners did not utter more sentences that contained path verbs than the beginner and intermediate learners.

In sum, the by language-group analysis produced evidence that did not support hypothesis (2b). The evidence demonstrated that, at all levels of L2 Spanish, the percentages of path types and tokens resembled those of the native speakers. In this sense, the L2 Spanish learners kept the same absence of difference when

compared to the results of path types and tokens in English. This suggests that level 300 learners did not appear more native-like than the other two groups, as predicted. Therefore, more experience in hearing and talking about motion event descriptions in Spanish had no differential effect according to the language-group analysis. In what follows, the results of the corpus analysis also conducted to address hypothesis (2b) are presented. The report begins with the analysis of the corpus of path and manner types and it continues with the analysis of the corpus of path and manner tokens.

Corpus analysis

The following analysis was performed to also investigate hypothesis (2b) which predicted that more advanced learners will produce percentages of path types and tokens in oral Spanish that approximate those of the L1 Spanish speakers. In this case, the L2 Spanish databases of path types and tokens were compared to the database of path types and tokens in L1 Spanish. Figure 6 presents the percentages of path and manner verb types in the databases of the three L2 Spanish groups as well as the L1 Spanish speakers. For convenience sake, the percentages of path types in L2 Spanish are repeated again. In the database of motion types at level 100, there were 63% path types; at level 200, there were 56% path types; level 300, 50% path types. The L1 Spanish corpus was formed by 75 verb types from which only 40% (N=30) were path types (see Appendix 27 (1)). The graph indicates that less than fifty percent of all the types were path in the L1 Spanish database. In other words, the percentages of path types at the beginner and intermediate levels were larger than those at level 300 and L1 Spanish. But, at the same time, the proportions of manner types began to gradually increase at level 200 with a 7% difference with respect to level 100. And, at level 300, the proportions of manner matched with the percentages of path and continued even higher as shown in the native-speaker database. It is possible that the increase of manner and decrease of path be the pattern that even more advanced L2 Spanish speakers follow until they become indistinguishable from the native speakers. Notice also that with twenty percent more manner types than path types, the result of the corpus analysis presented an opposite trend than the language-group

analysis in L1 Spanish. Corroborating previous findings by Hohenstein et al. (2006), Naigles et al. (1998), and Özçalışkan and Slobin (1999), the L1 Spanish speakers produced a vocabulary with higher proportions of manner than path verbs.

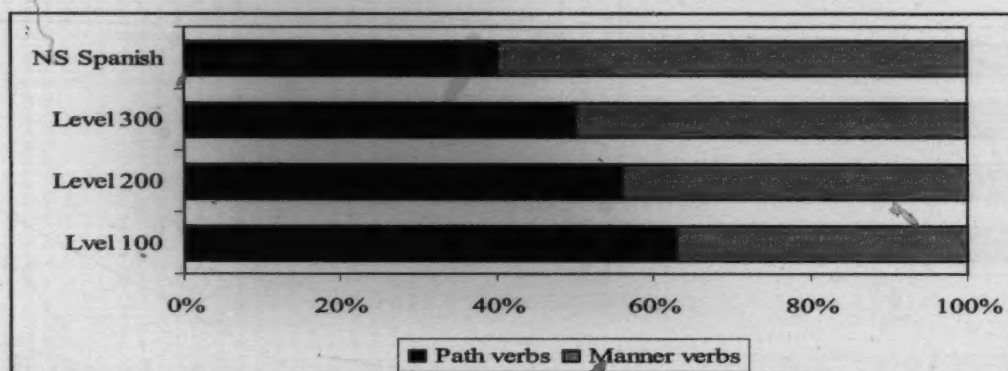


FIG. 6. Corpus analysis: Percentages of path and manner verb types in the oral narratives across the three L2 Spanish and the L1 Spanish databases.

In terms of the distribution of path tokens in L2 Spanish and L1 Spanish, the trends observed in the corpus analysis corroborated the results of the language-group analysis. For convenience sake, the percentages of path tokens in L2 Spanish are repeated again. Figure 7 shows that in the database at level 100, 63% of tokens were path; at level 200, 71% were path; at level 300, 68% were path. As to the L1 Spanish corpus, there were 630 tokens from which 65% ($N=412$) were path (see Appendix 27 (2)). As observed, the comparison of the frequencies of path-usage between the second language learners and the native speakers revealed that at all levels there were more path tokens than manner tokens. In addition, this analysis revealed that level 100 learners produced the same percentages of path types and tokens (63%). These results are indeed revealing as to how the beginner learners of Spanish started to profile motion events in the Romance language according to the corpus analysis. On the one hand, they produced a vocabulary of path types that was overwhelmingly larger than manner types. On the other hand, they maintained the same pattern as they did not overuse either form of conflation in oral production. Following the tendency for higher proportions of path types, level 200 learners also produced higher

proportions of path tokens. Conversely, level 300 and the native-speaker group presented rather contradictory trends. Although speakers in both groups seemed to understand that motion is also conceptualized in terms of manner in Spanish, they minimally reflected that in language production. In the two databases, the proportions of path tokens clearly exceeded those of manner tokens. This means that in production, level 300 learners and the native-speakers exploited a small number of path types and resorted less times to a much larger collection of manner types.

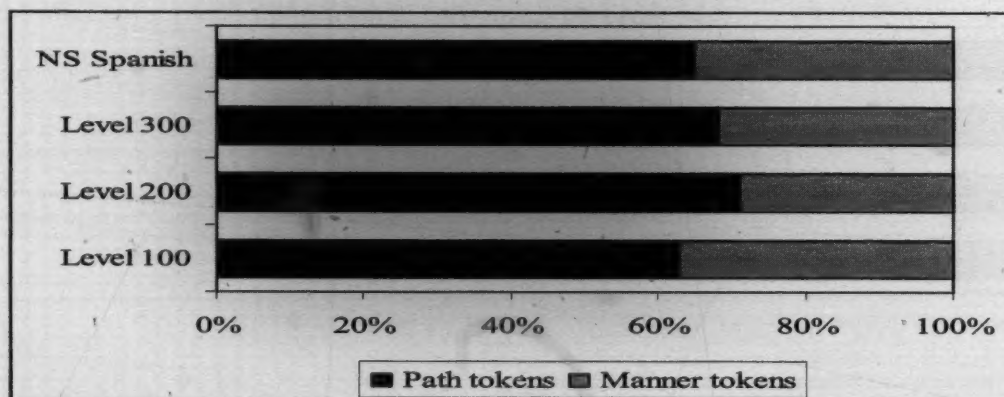


FIG. 7. Corpus analysis: Percentages of path tokens in the oral narratives across the three L2 Spanish and the L1 Spanish databases.

In conclusion, the language-group analysis and the corpus analysis yielded convergent patterns of L2 acquisition only when the data were analyzed for token frequencies, but not for type frequencies. Results from both methods suggested that there were more path tokens than manner tokens in oral production across the three levels of L2 Spanish. This result contravened the prediction that the advanced learners would present more native-like trends of motion usage than the less proficient L2 learners. Moreover, in both analyses results of the L1 Spanish group also contained more path tokens than manner tokens. Conversely, when the data were analyzed for type frequency, results of the two methods did not match. On the one hand, the language-group analysis produced invariant tendencies for more path than manner types across the three L2 Spanish and L1 Spanish vocabulary. On the other hand, the corpus analysis produced mixed results that ranged from more path types

among the less proficient learners, equal proportions of path and manner types in the more advanced learners to more manner types in L1 Spanish. One last point has to do specifically with the conflation patterns in L1 Spanish. In the language-groups analysis, the native speakers produced more path types than manner types; whereas in the corpus analysis, there were more manner types than path types. Even though these are two contradictory tendencies, there is evidence in the literature that supports both of them (see Chapter 3, 3.2.1). Indeed, this calls into question whether the concept of motion is lexicalized in terms of the manner or the path in the lexicon of motion verbs in Spanish.

In what follows, samples of motion types with highest token frequency in the L1 Spanish database and L2 Spanish databases are presented and discussed. The samples were selected according to an arbitrary cut off point of 10 tokens in a corpus. Crucial to the acquisition of the Spanish conceptual framework underlying motion descriptions were a series of verb sequences found in the path tokens of highest frequencies presented in Section 5.3.3.

5.3 Path and manner tokens with highest frequencies in L1 Spanish and L2 Spanish

5.3.1 Motion types with highest token frequencies in L1 Spanish

Table 5 and Table 6 present the path and manner types with the highest token frequencies produced by the native speakers in the oral narratives. Table 5 shows that from a total of 30 path types in the corpus, 13 (43%) verbs were among the types speakers used most frequently. Besides, *salir* 'exit', *ir* 'go', and *regresar* 'return' clearly constituted the highest token frequencies (80 tokens, 69 tokens, and 42 tokens) and the most number of speakers who produced them (18 speakers, 18 speakers, and 15 speakers).

TABLE 5
Sample of path verbs with highest token frequencies in L1 Spanish

Spanish types	English gloss	Tokens	# Speakers
<i>salir</i>	'exit'	80	18
<i>ir</i>	'go'	69	18
<i>regresar</i>	'return'	42	15
<i>llegar</i>	'arrive'	20	14
<i>subir</i>	'go up'	20	14
<i>llevar</i>	'carry'	19	14
<i>caerse</i>	'fall down'	18	14
<i>meterse</i>	'get into'	17	12
<i>pasar</i>	'pass'	17	10
<i>poner</i>	'put'	12	8
<i>devolverse</i>	'go back'	10	5
<i>venir</i>	'come'	10	9
<i>volver</i>	'come back'	10	6

Table 6 shows that from a total of 45 manner types, 4 (9%) were the most frequently used and *agarrar* 'grab' and *tirar* 'throw' showed the highest token frequencies (33 tokens and 22 tokens), as well as highest number of speakers who produced them (15 speakers and 12 speakers). In short, the overwhelming difference in token frequencies marked a clear trend for the native-speaker group. As shown in Table 5, the native-speaker group uttered path tokens which doubled the frequency of manner tokens and this should be considered robust evidence that the native Spanish speakers mostly described the motion events scenes of the Pink Panther on high token frequencies of path verbs. By contrast, Table 6 indicates that the native Spanish speakers described the motion scenes using manner-conflating verbs in fewer occasions.

TABLE 6
Sample of manner verbs with highest token frequencies in L1 Spanish

Spanish types	English gloss	Tokens	# Speakers
<i>agarrar</i>	'grab'	33	15
<i>tirar</i>	'throw'	22	12
<i>apretar</i>	'press'	12	6
<i>tocar</i>	'touch'	11	9

5.3.2 Motion verb types with highest token frequencies in L2 Spanish

Level 100

Table 7 indicates that from a total of 26 path types in the corpus, 3 (11.5%) verbs were among the most frequently used. By far, *ir* 'go' and *volver* 'return' ranked highest in frequency (25 tokens and 21 tokens) and with the most speakers who used them (11 speakers and 10 speakers).

TABLE 7
Sample of path verbs with highest token frequencies at level 100

Spanish types	English gloss	Tokens	# Speakers
<i>ir</i>	'go'	25	11
<i>volver</i>	'come back'	21	10
<i>entrar</i>	'enter'	12	7

As to manner verbs, there were a total of 15 types from which 2 (13%) verbs were among the most frequently produced across the twenty narratives. In Table 8 verbs *volar* 'fly' and *caminar* 'walk' showed the highest frequencies (16 tokens and 11 tokens) and highest number of users (10 speakers and 9 speakers).

TABLE 8
Sample of manner verbs with highest token frequencies at level 100

Spanish types	English gloss	Tokens	# Speakers
<i>volar</i>	'fly'	16	10
<i>caminar</i>	'walk'	11	9

Level 200

Table 9 shows that from a total of 24 path types in the corpus, 5 (21%) verbs were among the most frequently used. Items *ir* 'go' and *regresar* 'return' ranked highest in frequency with 65 tokens and 24 tokens respectively. From these two verb types, *ir* was associated with the highest number of users (19 speakers), but *regresar* 'return' was only used by 8 speakers.

TABLE 9
Sample of path verbs with highest token frequencies at level 200

Spanish types	English gloss	Tokens	# Speakers
<i>ir</i>	'go'	65	19
<i>regresar</i>	'return'	24	8
<i>caerse</i>	'fall down'	19	14
<i>entrar</i>	'enter'	18	12
<i>volver</i>	'come back'	17	7

As for manner types, there were 19 verbs from which 3 (16%) were associated with the most tokens in the corpus. Table 10 shows that *volar* 'fly' presented the highest frequency (17 tokens and 8 speakers). It was followed by *caminar* 'walk' (13 tokens and 5 speakers).

TABLE 10
Sample of manner verbs with highest token frequencies at level 200

Spanish types	English gloss	Tokens	# Speakers
<i>volar</i>	'fly'	17	8
<i>caminar</i>	'walk'	13	5
<i>correr</i>	'run'	10	7

Level 300

Table 11 reports that from a total of 25 path types in the corpus, 9 (36%) verbs were among the most frequently used. Particularly *ir* 'go', *salir* 'exit', and *regresar* 'return' concentrated the most tokens: *ir* (50 tokens and 15 speakers); *salir* (40 tokens and 14 speakers); *regresar* (33 tokens and 15 speakers).

TABLE 11
Sample of path verbs with highest token frequencies at level 300

Spanish types	English gloss	Tokens	Speakers
<i>ir</i>	'go'	50	15
<i>salir</i>	'exit'	40	14
<i>regresar</i>	'return'	33	15
<i>entrar</i>	'enter'	18	10
<i>caerse</i>	'fall down'	11	8
<i>subir</i>	'go up'	11	7
<i>venir</i>	'come'	11	6
<i>llevar</i>	'carry'	10	10
<i>pasar</i>	'go by'	10	7

Like path verbs, there were also 25 manner verbs in the corpus. Table 12 shows *volar* and *caminar* had the highest frequencies of use (27 tokens and 14 tokens) and highest number of speakers (16 and 9).

TABLE 12
Sample of manner verbs with highest token frequencies at level 300

Spanish types	English gloss	Tokens	# Speakers
<i>volar</i>	'fly'	27	16
<i>caminar</i>	'walk'	14	9
<i>tirar</i>	'throw'	10	7

5.3.3 The three path types with highest token frequencies in L2 Spanish and L1 Spanish

A final analysis performed to the corpus of types and tokens only considered the three path types with the highest token frequencies across the three levels of L2 Spanish and in the L1 Spanish oral narratives. The aim was first to produce a summary of the most productive tokens in the data and path verbs were clearly the largest in production. Second, it was estimated that if any pattern lies behind token production, it would most likely be reflected in the three types with highest token frequencies. The idea of a possible pattern was motivated by Slobin's (1987, 1991, 1996, 2003) proposal that Spanish and English speakers differ in how they think for speaking because they organize the flow of information differently. Consequently, they assign attention to different details that receive linguistic expression. Assuming that this idea is correct, speakers should manifest some evidence of their thinking for speaking in the motion types they mostly used in their narratives. Consider Table 13, which contains a summary of the three most productive path types from the L2 Spanish narratives and L1 Spanish narratives, respectively.

TABLE 13
The three path types with highest token frequencies in L2 Spanish and L1 Spanish oral narratives

Level 100 Types	Tokens	Level 200 Types	Tokens	Level 300 Types	Tokens	L1 Types	Spanish Tokens
<i>ir</i>	25	<i>ir</i>	65	<i>ir</i>	50	<i>salir</i>	80
<i>volver</i>	21	<i>regresar</i>	24	<i>salir</i>	40	<i>ir</i>	69
<i>entrar</i>	12	<i>caerse</i>	19	<i>regresar</i>	33	<i>regresar</i>	42

Throughout the three levels of L2 Spanish, path intransitive *ir* appeared as the most productive motion type with frequencies of 25, 65, and 50 tokens; however, this result was not corroborated by the native speakers. They uttered *salir* 'exit' with a frequency of 80 tokens. For the second largest token production, participants did not use the same verbs. Levels 100 and 200 used two synonyms (*volver* 'come back', 21 tokens; *regresar* 'return', 24 tokens) that expressed the same idea of *returning* to a ground. For the more advanced learners, *salir* 'exit' (40 tokens) was their second most widely used type and *ir* 'go' (69 tokens) for the native speakers. Notice the similarity between level 300 and the native speakers in having the same two types, but just in the reverse order. As the third most pervasive verb type in the entire L2 corpus, levels 100 and 200 had two completely unrelated verbs: *entrar* 'enter' (12 tokens) and *caerse* 'fall down' (19 tokens). In contrast, speakers from level 300 and the native speakers coincided again in having *regresar* 'return' as their third type with highest token frequency (33 tokens and 42 tokens). What the high frequencies of path tokens in the native-speaking database suggest is a tripartite sequence that reflects the way native speakers of Spanish conceptualized the displacement of the figures in the two stories. The L1 Spanish speakers conceptualized the figures as leaving from a ground, going in some direction, and finally returning to what possibly was the origin of the motion event. By contrast, learners at the three levels were motivated to describe the stimuli primarily unfolding as an event of figures 'going' in some direction without indication of a departure from a ground. Because *ir* 'go' was

consistently uttered more than any other verb across the three L2 Spanish levels, but not in L1 Spanish, it raised some doubts about the possibility that learners could have been influenced by their first language. In order to investigate this possible crosslinguistic interference, the path types with highest token frequencies in the English databases were also analyzed.

5.3.4 Motion verb types with highest token frequencies in English

Following the analysis performed on the L2 Spanish and L1 Spanish data, the English path verb types were also arranged in terms of the three most productive tokens. The aim was to verify the extent to which the Spanish learners could have produced some of the same patterns of thinking for speaking (Slobin, 1987, 1991, 1996, 2003) in English, when they told the Pink Panther stories in Spanish. Table 14 is a summary of the three most frequent path verbs that the three groups of L2 Spanish learners produced in their native English.

TABLE 14
Sample of path types with highest token frequencies in English

Level 100 Types	Tokens	Level 200 Types	Tokens	Level 300 Types	Tokens
<i>go</i>	81	<i>go</i>	163	<i>go</i>	135
<i>come</i>	23	<i>come</i>	47	<i>come</i>	54
<i>fall</i>	13	<i>get</i>	20	<i>get</i>	25

Results from Table 14 showed that speakers were consistent in using path verb types *go* and *come* most frequently. In addition, level 100 had *fall* as a third type with highest frequency. Similarly, levels 200 and 300 used *get* in several of their clauses as it was attested by a high number of tokens. It appeared as very striking, though, that the big difference in frequencies between the two first types and the third one. In fact, at the three levels *come* doubled in tokens both *fall* and *get*, but the real

difference was observed in the frequency of verb *go*. Table 14 shows that the first ranked verb *go* was used several orders of magnitude greater than the second and third verbs. In other words, the English speakers seemed to have construed most of their motion schemas in the oral narratives on simply two path types: *go* and *come*. This observation becomes very relevant because it uncovers the way information flows in the English narratives. That is, figures from the stimuli were mainly profiled by the English speakers as displacing in some direction (*go*), but then moving back towards a ground (*come*). As to the possible crosslinguistic interference of English on the L2 Spanish oral narratives, results in Table 13 seemed to confirm this possibility since *go*, whose Spanish equivalent is *ir*, presented the highest token frequency across the three levels in the English corpus and *ir* also showed the highest token frequency in the L2 Spanish corpus (see Table 13). As will be explained later, the correspondence in verbal production could be an indication that the advanced learners assigned attention to similar motion scenes that the native Spanish speakers saw in the visual stimuli. For this reason, the advanced learners produced similar token frequencies of path verbs types than the native speakers did. In what follows, the analysis and results of the postverbal modifiers in the L2 Spanish and L1 Spanish data are presented. The discussion includes the patterns of use for goal, source, and manner modifiers. It concludes with results of motion verbs with zero postverbal modifiers or bare verbs.

5.4 The syntactic aspect of the motion typology in oral production

The analyses and results presented next deal with the series of hypotheses about the way the L2 Spanish learners enhanced the meaning of motion verbs using modifiers to indicate the goal, the source, or the manner in which motion events happened. Also of interest for this analysis were the utterances which contained no modifiers at all. The aim of this analysis was to investigate the syntactic constructions in which learners uttered path and manner verbs. The data were obtained from the corpus of intransitive tokens produced in L2 Spanish. This analysis did not include a comparison with the syntactic constructions of the English motion descriptions.

Instead, the L1 Spanish results were included to determine the extent to which the L2 learners approximated the native-speaking pattern. The report begins with the percentages of *a* 'to', *para* 'to/towards', and *hasta* 'up to/as far as' phrases that indicated the goal of motion events.

5.4.1 The goal of motion events in the L2 Spanish and L1 Spanish oral narratives

With the aim of investigating hypothesis (3a) regarding the effect that high frequencies of *a* 'to' phrases, *para* 'to/towards' phrases, *hasta* 'up to/as far as' phrases would have on the production of path and manner tokens with goal modifiers, the corpus of tokens of the three levels of L2 Spanish were analyzed. The analysis only considered those utterances in which a preposition was followed by a nominal ground. In the case of tokens with more than one postverbal construction, only the construction that was closest to the main verb was considered. As mentioned in Section 4.6, there was an important methodological difficulty which involved the analysis of intransitive verbs with modifiers that deviated from the target-forms. For example, if the meaning of an *a* phrase as a goal modifier was semantically at odds with the meaning of the verb (e.g., *salió a la casa* 'went out to the house'); the phrase could not be considered a goal modifier. The meaning of *salir* 'exit' calls for a modifier which conveys the idea of motion to an unbounded area (e.g., *al jardín* 'to the garden'); however, the prepositional phrase *a la casa* 'to the house' indicates that the motion event leads to a bounded area. For the phrase *a la casa* 'to the house' to be considered as a goal modifier, it would need to modify a verb such as *ir* 'go' (e.g., *ir a la casa* 'go to the house') or *correr* 'run' (e.g., *correr a la casa* 'run to the house'). For this reason, the *a* phrase could not be considered as a goal modifier when modifying the verb *salir* 'exit'. Therefore, all cases similar to the example just presented were not coded.

Figure 8 below presents the percent distribution of tokens modified by goal postverbal constructions across the three levels of L2 Spanish and the L1 Spanish group. The black bars show the percentages of path tokens and the striped bars show

the percentages of manner tokens. From a total of 56 postverbal constructions modifying path tokens in the corpus of level 100, 55.35% (N=31) of them indicated the goal of motion. At level 200, 66.00% (N= 99) of the 150 constructions following path intransitive tokens were goal phrases. Similarly, from a total of 150 constructions modifying path intransitive tokens at level 300, participants uttered 55.33% (N= 83) of them as goal phrases. The L1 Spanish speakers produced a total of 296 modifiers with path verbs and 34.12% (N=101) were goal modifiers. On the other hand, the goal of motion was indicated in manner intransitive tokens in 13.04% (N= 3) of the 23 constructions produced by level 100 participants. Level 200 had a total of 35 constructions from which 37.14% (N= 13) specified the end point of manner intransitive tokens. Level 300 participants produced 42 constructions and 11.90% (N= 5) of them modified manner intransitive tokens for the goal of motion. The L1 Spanish speakers produced 66 modifiers with manner verbs from which 16.66% (N= 11) were goal modifiers.

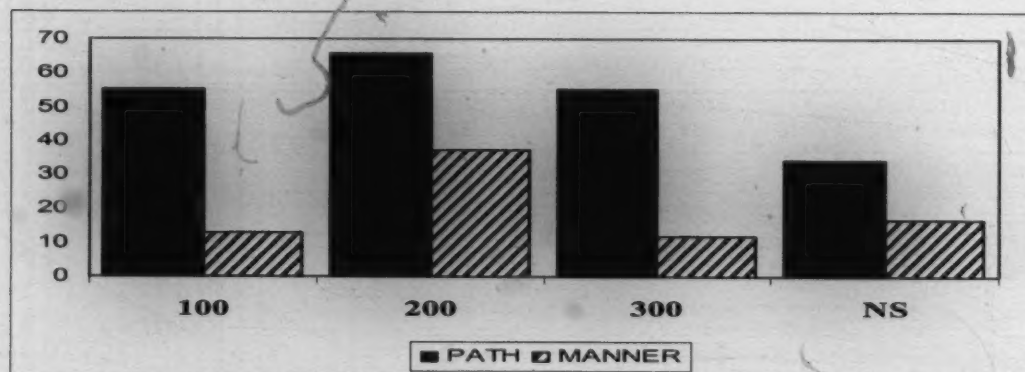


FIG. 8. Percentages of path and manner tokens with *a* 'to', *para* 'to/towards', and *hasta* 'up to/as far as' as goal modifiers across the three L2 Spanish and the L1 Spanish databases.

Table 15 presents a breakdown of the frequency of occurrence of the three goal phrases (*a*, *para*, and *hasta*) across the three levels of L2 Spanish and the L1 Spanish speakers. In addition, a sample of the most frequent path and manner verbs modified by goal phrases is presented below.

TABLE 15
Frequency of goal modifiers with path and manner verb tokens

Modifiers	Level 100 Path	Level 100 Manner	Level 200 Path	Level 200 Manner	Level 300 Path	Level 300 Manner	L1 Path	Spanish Manner
<i>a</i>	31	1	95	7	82	4	87	5
<i>para</i>	0	2	2	0	0	0	9	0
<i>hasta</i>	0	0	2	6	1	1	5	6

Undoubtedly, *a* phrases were the preferred postverbal modifiers across the four speaker group. At level 100, *a* phrases mostly followed *volver* 'come back' (14 tokens) and *ir* 'go' (6 tokens). Participants at level 200 had *a* phrases modifying *ir* 'go' (42 tokens), *regresar* 'return' (19 tokens), and *volver* 'come back' (14 tokens). At level 300, *a* phrases were mainly after *regresar* 'return' (28 tokens) and *ir* 'go' (24 tokens). Finally, the L1 Spanish speakers largely indicated the goal of motion through *a* phrases that followed *regresar* 'return' (20 tokens), *ir* 'go' (15 tokens), *llegar* 'arrive' (14 tokens), *meterse* 'get into' (11 tokens), and *subir* 'go up' (11 tokens).

Unlike path verbs, there was more variation in the goal modifiers with manner tokens. For example, at level 100, *caminar* 'walk' was modified by a single token of *a* phrase and two *para* phrases. At level 200, most *a* phrases followed *caminar* 'walk' (3 tokens) and the same verb *volar* 'fly' was modified by all *hasta* phrases (6 tokens). At level 300, the same verb *caminar* 'walk' was modified by *a* phrases (2 tokens) and the only *hasta* phrase produced. The L1 Spanish speakers produced *a* phrases following *tirarse* 'throw oneself' (2 tokens), whereas the majority of *hasta* phrases followed *remar* 'row' (3 tokens), *nadar* 'swim' (2 tokens), and a single token of *caminar* 'walk'.

To summarize, the results in this analysis upheld hypothesis (3a). L2 Spanish participants across levels produced *a* 'to', *para* 'to/towards', and *hasta* 'up to/as far

as' phrases to convey the goal of motion when they uttered sentences with path verbs rather than manner verbs. As mentioned earlier, the use of path verbs with telic goal modifiers have been identified as a feature of monolingual Spanish (Aske, 1989; Berman & Slobin, 1994). In this analysis, results suggested that L2 Spanish learners also uttered more goal modifiers with path verbs; furthermore, proficiency in the second language seemed not to be important since level 100 learners produced similar utterances as the more proficient learners. One way to account for the similarity in trends across levels is to think of the syntactic contexts in which learners most frequently heard or read some of the verbal forms they employed in the production task. It is likely that learners received, through instruction or mere exposure, verbal forms which were consistently modified by the same prepositional phrases (e.g., *ir a* 'go to', *trabajar para* 'work for', *correr hasta* 'run to'). In this way, learners from early on used some verbs followed by an *a* 'to' phrase or a *para* 'for' phrase, regardless of whether the communicative context refers to motion events or not. That is, they acquired verbal chunks which contained verbs of motion and the corresponding prepositional modifiers, but without intending to express the goal of motion. Notice though that this explanation remains speculative as the present study did not include a measure of the language input learners received in the L2 Spanish classroom.

5.4.2 The source of motion events in the L2 Spanish and L1 Spanish oral narratives

As in the case of goal modifiers whose telic meaning is compatible with the *Aktionsart* of path verbs, source modifiers have a similar semantic-syntactic property in Spanish. In (3b) it was hypothesized that all L2 Spanish learners would produce higher percentages of path tokens than manner tokens with *de* 'off/of' and *desde* 'from' to express the source motion. Figure 9 shows the distribution of *de* as well as *desde* phrases modifying path tokens (the black bars) and manner tokens (the striped bars) in the corpus of L2 Spanish and L1 Spanish. From a total of 56 postverbal modifiers with path verbs at level 100, 14.28% (N = 8) were *de* phrases and from a total of 23 postverbal modifiers with manner verbs, 4.34% (N = 1) were *de* phrases.

Likewise there were only *de* source phrases at level 200 and from a total of 150 postverbal modifiers with path verbs, 16.66% (N = 25) were *de* phrases and from a total of 35 modifiers with manner verbs, 11.42% (N = 4) were *de* phrases. At level 300, there were a total of 150 modifiers with path verbs and 16% (N = 24) were *de* phrases, whereas 9.52% (N = 4) of the 42 modifiers with manner verbs were *de* phrases. As to the native speakers, results indicated that from a total of 296 modifiers with path verbs, 11.48% (N = 34) were *de* phrases; likewise, from a total of 66 modifiers with manner verbs, 3.03% (N = 2) functioned as source modifiers. As observed, when describing figures in motion, learners from the three levels of L2 Spanish specified the source of motion more frequently in sentences with path verbs than manner verbs and this trend was corroborated by the native-speaker results. In what follows, detailed information about the frequencies of source modifiers and examples are presented.

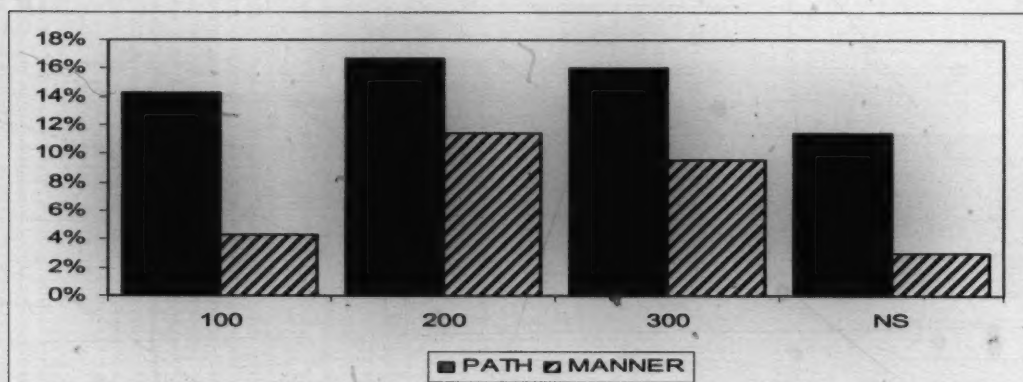


FIG. 9. Percentages of path and manner tokens with *de* 'off/of' and *desde* 'from' as source modifiers across the three L2 Spanish and the L1 Spanish databases.

Table 16 presents a breakdown of the frequency of *de* and *desde* phrases across the three levels of L2 Spanish and L1 Spanish. In addition, a sample of the most frequent path and manner verbs modified by these phrases is presented below.

TABLE 16
Frequency of source modifiers with path and manner verb tokens

Modifiers	Level Path	100 Manner	Level Path	200 Manner	Level Path	300 Manner	L1 Path	Spanish Manner
<i>de</i>	8	1	25	4	24	3	34	0
<i>desde</i>	0	0	0	0	0	1	0	2

Clearly *de* phrases were the most frequent source modifier for path intransitive tokens across the four groups of speakers. At level 100, most *de* phrases modified *caerse* 'fall down' (2 tokens), *descender* 'descend' (2 tokens), *salir* 'exit' (2 tokens). At level 200, *de* phrases modified *caerse* 'fall down' (9 tokens), *escaparse* 'escape' (6 tokens), and *salir* 'exit' (9 tokens). At level 300, *de* phrases modified *salir* 'exit' (16 tokens), *caerse* 'fall down' (2 tokens), *escaparse* 'escape' (2 tokens), and *venir* 'come' (2 tokens). In L1 Spanish most *de* phrases modified *salir* 'exit' (23 tokens), *caerse* 'fall down' (4 tokens), and *escaparse* 'escape' (3 tokens).

The most frequent source modifiers with manner verbs were *de* phrases. The L2 learners and the native speakers produced these phrases to modify some of the following manner verbs. At level 100, there was only verb *saltar* 'jump' (1 token) followed by a *de* phrase. At Level 200, learners produced manner verbs *correr* 'run', *saltar* 'jump', and *volar* 'fly' followed by *de* phrases and each had one token. At level 300, participants produced manner verbs *caminar* 'walk', *lanzarse* 'leap into', *saltar* 'jump' modified by *de* phrases, each with one token. The native speakers had two tokens of *desde* phrases to specify the source of motion to the verb *tirarse* 'throw oneself'.

In sum, a second analysis of the data of postverbal modifiers revealed that learners across levels performed as predicted in hypothesis (3b). That is, when describing motion events in the oral narratives, they largely produced higher proportions of utterances with path verbs and *de* phrases to profile the source of

motion. As expected in monolingual Spanish, the native speakers followed the same trend by also producing more path verbs than manner verbs with source phrases. Recall that these kinds of constructions are semantically constrained to function as telic modifiers, in the same way goal modifiers are (Aske, 1989, Berman & Slobin, 1994). The findings in this analysis demonstrated that learners did not override the semantic-syntactic function of *de* and *desde* phrases in oral production. Likewise, proficiency in the second language seemed not to have an effect in this case either. Although some of the participants were in the early stages of learning Spanish, they clearly demonstrated correct use of this aspect of the syntax of motion verbs. It is important to mention, however, that the possibility that the prepositional modifiers *de* 'off' or 'of' and *desde* 'off' were learned as packaged to the meaning of path verbs remains open. Same as in the case of path verbs with goal modifiers, it is likely that learners often heard or read path verbs modified by prepositions *de* 'off' or 'of' and *desde* 'from'; thus, they learned them as verbal chunks (e.g., *salir de* 'exit from', *caminar desde* 'walk from'). If this were the case, it would not be completely accurate to suggest that learners have acquired the use of telic constructions to express the source or goal of motion without acknowledging that learners, particularly at the beginner level, were perhaps reproducing unanalyzed chunks of language. Therefore, it becomes more challenging to determine the acquisition of this aspect of the syntax of motion of verbs as it seems to be confounded with a general strategy to learn verbs in the second language. But again, in the absence of a measure of the language input learners received in the L2 Spanish classroom, the idea suggested here should be taken as speculative rather than conclusive.

5.4.3 The manner of motion events in the L2 Spanish and L1 Spanish oral narratives

In this analysis, all examples of gerunds, adverbs and manner phrases from the three levels of L2 Spanish and the L1 Spanish speakers were analyzed. The aim was to explore whether the amount of exposure and production of Spanish would have an effect on how the advanced learners more than the beginner and intermediate learners use path verbs with manner modifiers in the second language (Hypothesis 4). Figure

10 shows the distribution of manner expressions with path verbs (the black bars) and with manner verbs (the striped bars). Results indicated that from the total of 56 postverbal modifiers with path verbs at level 100, 5.35% ($N = 3$) were manner expressions and from the total of 23 postverbal modifiers with manner verbs, 43.47% ($N = 10$) functioned as manner expressions. At level 200, learners produced a total of 150 postverbal modifiers with path verbs and 6% ($N = 9$) were manner expressions; whereas 14.28% ($N = 5$) from the total of 35 postverbal modifiers with manner verbs were manner expressions. Level 300 participants produced a total of 150 postverbal modifiers with path verbs and 8.66% ($N = 13$) were manner expressions; in addition, 11.90% ($N = 5$) from a total of 42 postverbal modifiers with manner verbs were manner expressions. Notice that at level 300, the percentages of manner expressions for path and manner tokens were very similar; however, raw frequencies of expressions with path verbs doubled the number of expressions with manner verbs. Finally, the L1 Spanish speakers showed a different trend since 22.29% ($N = 66$) of the 296 postverbal modifiers with path verbs functioned as manner expressions and only 15.15% ($N = 10$) of the 66 modifiers with manner verbs were manner expressions. This result was on a par with previous findings for monolingual Spanish and it confirmed that manner expressions function namely as modifiers of path verbs. In this respect, Hohenstein et al., 2006; Naigles et al., 1998 have suggested that Spanish speakers produce high frequencies of manner expressions to compensate for a lower frequency of manner verbs. Furthermore, this evidence challenges Berman and Slobin (1994) who argued that Spanish speakers avoid uttering path verbs with manner constructions in the same schema.

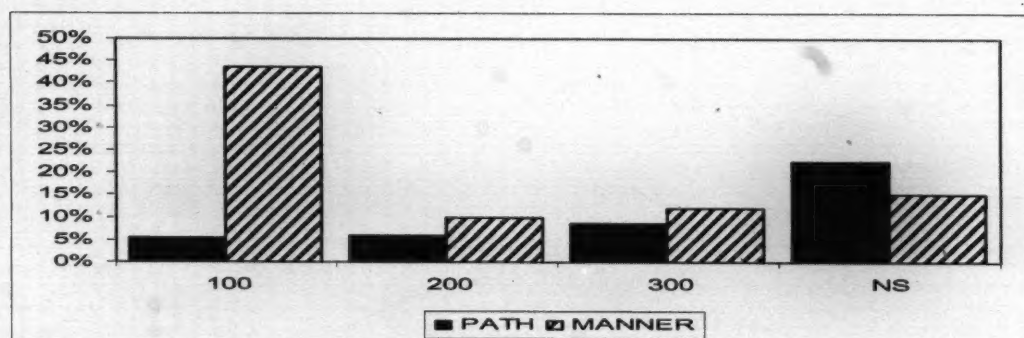


FIG. 10. Percentages of path and manner tokens with manner modifiers across the three L2 Spanish and the L1 Spanish databases.

Table 17 presents a breakdown of the frequency of gerunds, adverbs and manner expressions across the three levels of L2 Spanish and the L1 Spanish speakers. Moreover, some of the most frequent path and manner verbs with manner expressions are presented below.

TABLE 17
Frequency of manner expressions with path and manner verb tokens

Modifiers	Level Path	100 Manner	Level Path	200 Manner	Level Path	300 Manner	L1 Path	Spanish Manner
Gerunds	1	0	3	0	6	0	27	1
Adverbs	2	8	5	0	2	3	19	2
Expressions	0	2	1	5	5	2	20	7

With respect to the most frequent path verbs with manner expressions, level 100 learners produced *ir* 'go' followed by adverbs (2 tokens) and a gerund. At level 200, *ir* 'go' was followed by gerunds (3 tokens) and adverbs (5 tokens); there was also a phrase after *volver* 'come back'. At level 300, the verbs followed by gerunds were *ir* 'go' (4 tokens) and *salir* 'exit' (2 tokens); the verbs followed by adverbs were *andar* 'walk' and *subir* 'go up' (1 token each); the verbs followed by phrases were *ir*

'go' (3 tokens), *salir* 'exit' and *subir* 'go up' (1 token each). The L1 Spanish speakers produced gerunds following *ir* 'go' (16 tokens), *salir* 'exit' (6 tokens), *venir* 'come' (3 tokens), and *regresar* 'return' (2 tokens); the adverbs appeared following *ir* 'go' (6 tokens), *salir* 'exit' (6 tokens), *regresar* 'return' (3 tokens), and single tokens of *bajar* 'go down', *pasar* 'go by', *venir* 'come' and *viajar* 'travel'. Manner expressions mostly followed *salir* 'exit' (6 tokens), *ir* 'go' (5 tokens), and *venir* 'come' (3 tokens). Notice that level 300 and the L1 Spanish speakers resorted to more gerunds to modify path verbs. Moreover, there were some interesting similarities in the way both groups modified *ir* and *salir* with gerunds and manner expressions.

In the L2 Spanish data, most manner expressions with manner verbs were adverbs and phrases. For examples, at level 100, the adverbs mainly followed *volar* 'fly' (4 tokens), *nadar* 'swim' (2 tokens), *caminar* 'walk' and *correr* 'run' (1 token each); there were also two phrases with *volar* 'fly'. At level 200, there were phrases with *caminar* 'walk' (5 tokens), *volar* 'fly' (1 token each), and *correr* 'run' (2 tokens). At level 300, the adverbs followed *volar* 'fly' (2 tokens) and *caminar* 'walk' (1 token); the phrases appeared with *caminar* 'walk' and *volar* 'fly' (1 token each). Most of the L1 Spanish manner verbs were modified by phrases as in the case of *despegar* 'take off' (2 tokens) and *aterrizar* 'land', *cerrar* 'close', *remar* 'row', *sellar* 'seal', *volar* 'fly' (1 token each), whereas manner verbs *despegar* 'take off' and *volar* 'fly' (1 token each) were followed by adverbs. The only example of a gerund appeared with verb *aterrizar* 'land' (1 token).

To summarize, the overall analysis did not support Hypothesis 4. Across the three L2 Spanish levels, participants produced higher percentages of manner modifiers with manner verbs rather than path verbs. Indeed, learners at Level 100 uttered the highest proportions of manner expressions with manner verbs. It is likely that this result was the effect of lower levels of exposure and production of Spanish. The results at this level reflected the trends previously observed in the English language with more manner expressions modifying manner verbs than path verbs (Naigles et al., 1998). Although levels 200 and 300 also presented similar trends to

the one shown by level 100, albeit less pronounced, there were some subtle tendencies that evidenced the L1 Spanish-usage among the advanced learners. For example, the proportion of manner expressions with manner verbs was clearly higher than that of path, but they still had raw frequencies of path tokens that doubled the manner tokens. Moreover, Table 17 showed that level 300 learners uttered path verbs mainly with gerunds, in the same way the native speakers added manner information to path verbs. Also both groups matched each other in having *ir* 'go' and *salir* 'exit' modified by gerunds and manner expressions. In this sense, the results at level 300 could be interpreted as a slight trend to approximate the way L1 Spanish speakers used manner expressions. It is likely that further exposure and production of motion descriptions will enable level 300 learners to approximate to the L1 Spanish pattern completely.

5.4.4 The use of bare verbs in the L2 Spanish and L1 Spanish oral narratives

In this analysis, the use of bare path and manner verbs in L2 Spanish and L1 Spanish were studied. The aim was to account for Hypothesis (5a) which predicted higher percentages of manner verbs than path verbs with no postverbal modifiers in the oral narratives of the three levels of L2 Spanish. Figure 11 shows that across levels, learners uttered higher percentages of bare manner verbs (the striped bars) than bare path verbs (the black bars) and this tendency was the same for the L1 Spanish speakers. More specifically, from the total of 56 path verbs at level 100, learners uttered 25% (N= 14) as bare verbs. At level 200, 11.33% (N= 17) of the 150 path verbs were bare verbs. But, at level 300 there was a slight increase because from the total of 150 path verbs, 20% (N= 30) were bare verbs. The results of the L1 Spanish group showed that from a total of 296 path verbs, 32.09% (N= 95) were bare verbs. As to manner verbs, Figure 11 shows that from the total of 23 manner verbs at level 100, learners produced 39.13% (N= 9) as bare verbs. At level 200, 37.14% (N= 13) of the 35 manner verbs were uttered as bare verbs. At level 300, 66.66% (N= 28) of a total of 42 manner verbs were uttered with zero modifiers. Finally, from the total of 66 manner verbs in L1 Spanish, 65.15% (N= 43) were bare forms. Taken together, these results upheld what was predicted in hypothesis 5 (a). Across the three levels of

L2 Spanish, learners consistently elaborated higher percentages of manner verbs with zero postverbal modifiers than path verbs in agreement with the L1 Spanish results and previous studies by Hohenstein et al (2006), Naigles et al. (1998). In fact, the beginner learners produced slightly more bare manner verbs than the intermediate learners, but the real increase was observed at level 300. The advanced learners uttered 29.52% more bare manner verbs than the intermediate learners and nearly the same percentage as the native speakers. Notice that this latter result went in the direction of what was predicted in Hypothesis (5b), in the sense that the advanced learners resembled the L1 Spanish usage of bare manner verbs. Naigles and Terrazas (1998) sustain that there is an overall propensity for manner verbs to be uttered in clause final position since the meaning of these verbs requires no indication of a ground to express motion. This idea entails that the kind of input learners received in the Spanish classroom was probably skewed towards high frequencies of manner verbs with no modifiers. Thus, in the context of implicit learning, the L2 learners from early on could apprehend the manner plus zero modifiers as they paid attention to the high frequency cues in the input (Reber, 1967) and applied the constructions in usage (N. Ellis, 2002, Gass & Mackey, 2002). As mentioned earlier, the present study did not include a specific measure of the language input learners received in the classroom; therefore, suggestions about input effect in the L2 Spanish results should be considered speculative only. In this study, the native-speaker results were the closest evidence of the kind of input that learners probably were exposed to. However, this is only indirect evidence and of non-classroom data. For a more accurate analysis, it would perhaps be necessary to consider the language output of the teacher, the audio-written materials, and the language output produced by the learners themselves.

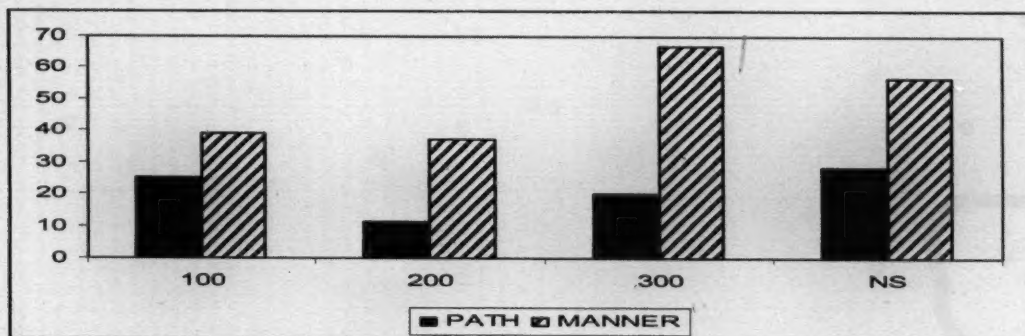


FIG. 11. Percentages of path and manner tokens with no postverbal modifiers across the three L2 Spanish and the L1 Spanish databases.

Table 18 presents a breakdown of the bare path verb tokens with highest frequency of occurrence across the three levels of L2 Spanish and L1 Spanish.

TABLE 18
Frequency of bare path verb tokens

Path	verbs	Level 100	Level 200	Level 300	L1 Spanish
<i>caerse</i>	'fall down'	2	4	4	10
<i>devolverse</i>	'go back'	-	-	-	5
<i>entrar</i>	'enter'	-	-	2	-
<i>escaparse</i>	'escape'	-	-	2	-
<i>ir</i>	'go'	-	-	2	11
<i>llegar</i>	'arrive'	-	-	-	5
<i>regresar</i>	'return'	-	4	2	14
<i>retornar</i>	'go back'	-	2	-	-
<i>salir</i>	'exit'	3	2	10	29
<i>subir</i>	'go up'	-	-	2	5
<i>volver</i>	'come back'	2	-	-	-

Table 18 shows that across the three levels of L2 Spanish and L1 Spanish, participants coincided in describing the figures in motion with path verbs *salir* 'exit', *caerse* 'fall down', and *volver/regresar* 'come back'/'return' with zero postverbal modifiers. Equally interesting is the fact that level 300 and the native speakers

produced nearly the same path verbs and *salir* was the highest in frequency in both corpora.

TABLE 19
Frequency of bare manner verb tokens

Manner	verbs	Level 100	Level 200	Level 300	L1 Spanish
<i>abrir</i>	'open'	-	-	3	7
<i>aterrizar</i>	'land'	-	-	-	4
<i>caminar</i>	'walk'	2	5	5	-
<i>correr</i>	'run'	-	-	-	4
<i>despegar</i>	'take off'	2	2	-	6
<i>nadar</i>	'swim'	3	-	4	-
<i>volar</i>	'fly'	-	3	-	-
<i>voltear</i>	'turn around'	-	-	6	5

Table 19 shows that *caminar* 'walk' ranked high in frequency across the three levels of L2 Spanish, but not in L1 Spanish. With the exception of verbs *abrir* 'open' and *despegar* 'take off', the L2 learners and the L1 Spanish speakers produced different bare manner verbs.

Summarizing, results of the syntactic aspect of the motion typology showed that learners, at the three levels of L2 Spanish, were consistent in how they specified additional information to path verbs and manner verbs. For instance, on a par with the L1 Spanish results, all L2 Spanish learners produced higher percentages of path verbs when they described the points reached by figures in motion (the goal) or the point from where the figures moved (the source). There was important variability in the percentages, with level 300 being the closest to the target-patterns. In terms of verbs with no postverbal modifiers, L2 Spanish learners consistently produced more bare manner verbs than bare path verbs, same as the native speakers. And yet, the use of manner expression was the aspect in which the L2 Spanish learners clearly did not match with the native-speaker group. Across the three levels, learners added manner

information to manner verbs and not to path verbs. A closer observation of the raw frequencies, however, revealed that level 300 learners produced more path tokens than manner tokens with manner modifiers. Moreover, these learners like the native speakers produced more gerunds and had some of the same path verbs modified with manner expressions (e.g., *ir*, *salir*). These results were interpreted in favour of level 300 showing subtle trends that evidenced more of the Spanish native way of using manner modifiers. Incidentally, throughout the four syntactic analyses, level 300 were the closest to the L1 Spanish pattern, something that was attributed to the more extensive exposure to and practice with the second language. This result corroborated previous evidence which indicated that enough second language exposure leads bilingual speakers to become indistinguishable from native speakers (McDonald, 1987, McDonald & Heilenman, 1992). In contrast, the variability of estimates at levels 100 and 200 showed that these learners were less consistent with the L1 Spanish results. This tendency could be partly attributed to the more minimal exposure and usage of motion descriptions in the second language, but also to a possible influence of the first language. In the next section, results that could be interpreted as crosslinguistic interference of English on the L2 Spanish motion descriptions are discussed.

5.5 Crosslinguistic interference

The possibility that results in the receptive and production of motion in L2 Spanish could have been affected by the English language became more evident in three results. The first case was observed among the beginner and intermediate learners who chose more sentences with manner verbs than path verbs in the receptive task (Hypothesis 1b). A statistical analysis corroborated that the proportions of manner verbs at levels 100 and 200 were significantly higher than those of level 300 and the L1 Spanish speakers (see Section 5.1 for details on the percentages). What these results suggest was that the lower level learners, who had less experience hearing, reading, and talking about motion descriptions in Spanish, were minimally sensitive to the path of motion. When compared to the English receptive results, the

beginner and intermediate learners showed that they could establish a preferential difference for path in Spanish. However, when compared with speakers who clearly had more experience with Spanish, the beginner and intermediate learners' preference for path verbs was not strong enough. Thus, what became reflected in the receptive task was simply a preference for the lexicalization pattern learners at levels 100 and 200 were more familiar with and was, therefore, more natural to them—the manner of motion.

A second example that could be interpreted as an effect of English on the L2 Spanish corresponds to the results of path token frequencies. In Table 13, path types *ir* 'go' showed the highest token frequencies across the three L2 Spanish levels. Likewise, in Table 14 path type *go* presented the highest token frequencies. The possibility of interference was motivated by the idea that both verbs are semantically equivalent and valid translations into both languages. Therefore, the fact that the Spanish learners, but not the native speakers, showed a clear reliance on verb type *ir* 'go' suggested the possibility that learners superimposed the English lexical selection onto the second language. The question that arises has to do with the effect that the lexicalization of high token frequencies of *ir* could have on the way learners conceptualized motion in the L2 Spanish narratives. This is a point that will be discussed more extensively in the next chapter.

A third example corresponds to the results of manner expressions at level 100. Clearly, there was a general tendency for higher proportions of manner verbs with manner expressions across the three L2 Spanish levels. But the percentage of manner modifiers at level 100 was almost three times larger than those of the intermediate and advanced learners. It is possible that this overwhelming tendency for uttering manner verbs with manner modifiers reflected the less exposure to the Spanish language that these learners had. Being just in their first year of studying Spanish, level 100 learners did not have the opportunity to receive enough examples in the input that would allow them to detect the internal patterns for the expression of manner in nonverbal forms as N. Ellis (2002) would argue. Therefore, the trends

shown in the L2 Spanish *narratives* most likely responded to the way level 100 learners encoded manner in nonverbal constructions in English.

Chapter 6: General discussion

The present study investigated, cross-sectionally, the acquisition of verb use underlying the description of motion events in L2 Spanish. Before addressing the specific predictions that motivated the study, two caveats are in order. First, since this is a first attempt to explore the acquisition of constructional patterns of motion in Spanish learners of different degrees of proficiency, some of the results are suggestive, rather than conclusive. Some of the results should be considered as trends whose full validity needs to be established by future research. Second, the discussion of the lexico-semantic results will be weighed more heavily than the trends found in the syntactic aspect as they reflect measurements of acquisition in two modalities: receptive and production.

6.1 The description of motion events in L2 Spanish and in English in the receptive task

It is likely that as a result of more proficiency in L2 Spanish, L1 English learners of Spanish become more sensitive to the expression of motion in written Spanish. If given the possibility to choose between motion descriptions containing path and manner verbs written in Spanish and in English, L2 Spanish learners will select more path verbs.

- (1a) It was hypothesized that L2 Spanish learners across levels will select higher percentages of sentences with path verbs in the second language than in their first language.

The data obtained in the receptive task upheld the prediction. A two-way ANOVA test showed that, across the three L2 Spanish groups, learners chose significantly more sentences with path verbs in Spanish descriptions of video scenes compared with English descriptions. This same tendency for greater use of path verbs by learners of Spanish was also observed in the distribution of the data within each

group. At level 100, even the learners with the least exposure to Spanish input showed percentages of path verbs that were significantly different from those in English. At level 200, the intermediate learners also obtained significantly higher percentages of path in Spanish than in English and these percentages matched those of the beginner learners. This contrasted more greatly with the percentages at level 300. The advanced learners showed robust evidence that motion descriptions with path verbs read more "naturally" in Spanish than in English.

- (1b) It was hypothesized that advanced Spanish learners will demonstrate a preference for path in written descriptions in percentages that approximate those of the L1 Spanish speakers.

In order to determine whether the results of the advanced learners resembled the native-speaker pattern more closely, the three L2 Spanish levels were compared to the L1 Spanish data. The results confirmed that level 300 learners chose significantly more sentences with path verbs than levels 100 and 200. Likewise, the response patterns indicated that there were no differences between the results of level 300 and the native-speaker group, but there was a significant difference between levels 100 and 200, on the one hand, and the native speakers on the other hand. In contrast, results of level 300 were not reliably distinguishable from native-like use of motion in the receptive task. Level 100 and 200 learners resembled Spanish-like patterns of greater preference of path, when they were compared to the percentages of path in the English data. However, when their percentages of path were compared with level 300 and the L1 Spanish group, results indicated that the beginner and intermediate learners chose fewer sentences with path verbs and more sentences with manner verbs much like in the receptive task in English. These results suggested that even at the 100 level, L2 learners are sensitive to the Spanish preference for path. However, several years of exposure to Spanish may be required to achieve native-like performance on this task.

6.2 The lexicalization of path and manner verbs in L2 Spanish and in English oral production task

In the absence of pedagogical rules on motion event description in instructed Spanish, L1 English-L2 Spanish learners probably acquire the target-lexicalization pattern proportionally to their exposure and production of the second language.

- (2a) It was hypothesized that learners, across levels, will produce higher percentages of path types in the L2 Spanish vocabulary as well as in higher percentages of path tokens in the L2 Spanish oral production, but not in the English vocabulary or usage.

Results of the language-group analysis and corpus analysis upheld what was predicted in Hypothesis (2a). Across all levels of L2 Spanish, learners produced more utterances with path types in the Spanish oral narratives than in the English oral narratives. In the language-group analysis, the learners produced a vocabulary with lower percentages of path types in English than in Spanish. In addition, the evidence suggested that proficiency in the second language had no effect since the trend for higher percentages of path types in the L2 Spanish narratives was consistently observed across the three levels of L2 proficiency. That is, at level 100, the beginner learners produced equal proportions of path types as the intermediate and advanced learners. Likewise, the results obtained in the corpus analysis corroborated the same trend for higher proportions of path types across the three L2 Spanish levels, but not in English.

In terms of token frequencies, the results obtained in the L2 Spanish narratives and English narratives suggested a similar pattern to what was observed in the vocabulary of path verb types. At the three levels of L2 Spanish, participants produced higher percentages of path tokens when they told the Pink Panther stories in Spanish, but significantly fewer when they narrated the same story in their first language. As in their production of path types, levels of proficiency in the second

language had no effect. The trends for higher percentages of path tokens in L2 Spanish were corroborated by results of the corpus analysis. When the databases of tokens of path verbs in L2 Spanish and English were compared, results indicated that the proportions of path tokens in the second language were higher than those in the first language. Moreover, this tendency was observed at the three levels of L2 Spanish, supporting the notion that exposure and mastery of the second language seemed to have no effect in the patterns of path-usage observed in the oral narratives.

6.3 The lexicalization of path and manner verbs in L2 Spanish and L1 Spanish oral production task

- (2b) It was hypothesized that more advanced Spanish learners will produce percentages of path types and tokens in oral Spanish that approximate those of the L1 Spanish speakers.

Results of the language-group analysis showed that there were no differences in the percentages of path types of the three groups of L2 Spanish compared to the L1 Spanish group. There were no more path types in the vocabulary of the oral narratives produced by the native speakers than in the L2 Spanish oral narratives. Proficiency in L2 Spanish did not show an effect because level 100 learners produced percentages of path types that were comparable to the percentages of path types produced by the other two groups of learners and the native speakers alike. Similarly, the percentages of path tokens of L2 Spanish were comparable to the token frequencies in L1 Spanish. The second language learners across levels uttered as many sentences with path tokens as the native speakers. In addition, and contrary to the prediction, levels of proficiency and exposure to Spanish had no effect, as all learners presented percentages of path tokens that were on a par with those of the L1 Spanish group. Level 100 learners produced results of path tokens that indicated native-like patterns of path-usage. The intermediate and the advanced learners, who had been exposed to more input frequency of motion verbs, did not deviate from the trend shown by the

beginner learners. The results of level 200 and 300 clearly showed patterns of path-type that resembled the target language.

In the corpus analysis, results of L2 Spanish and L1 Spanish were examined as a database of types and tokens. The aim was also to explore whether the L2 Spanish learners who have been exposed to more Spanish input would reflect native-like trends in both path types and path tokens in oral production. Results revealed an interesting disparity of trends. For instance, levels 100 and 200 presented higher percentages of path types than level 300 and the L1 Spanish group. But the advanced learners showed that from the total of motion types produced, exactly fifty percent of the motion-verb vocabulary corresponded to path types. In the native-speaker vocabulary, results showed that there were, in fact, more manner types than path types.

As to the distribution of path tokens, results indicated that level 100 learners produced higher proportions of path tokens than manner tokens. However, level 200 learners produced higher proportions of path tokens than the other two groups. Level 300 learners, on the other hand, presented results that indicated lower percentages of path tokens than the intermediate level, but still higher proportions than the native speakers. The percentages of path tokens of the L1 Spanish group came closer to the trend shown by the beginner learners than to the proportion of the more proficient learners. Finally, a review of the three types with highest token frequencies revealed that the advanced learners almost merged with the *salir-ir-regresar* sequence found in the token frequencies of the L1 Spanish speakers. In the highest token frequencies of path tokens at level 100 and 200, results presented a different trend. The beginner and intermediate learners described motion events, relying on the *ir-volver/regresar* sequence and the verbs were the equivalent translations of the highest token frequencies in the English database (i.e., *go-come*).

In sum, the evidence from the lexico-semantic aspect produced by the language-group analysis and corpus analysis presented converging patterns only in

the proportions of tokens, but not in the proportions of motion-verb types. Both methods of data analysis showed that across the three groups of L2 Spanish and the native speakers, the participants uttered higher percentages of path tokens than manner tokens in the oral narratives. Conversely, the two methodologies indicated different trends for the composition of the vocabulary in L2 Spanish and L1 Spanish. While the language-group analysis presented higher percentages of path types than manner across the four groups, the corpus analysis revealed that the percentages of path decreased proportionally to the levels of proficiency. Instead, the vocabulary presented a rising trend for the lexicalization of the manner of motion with level 300 producing equal proportions of manner and path types. A similar trend was observed in L1 Spanish whose database presented the highest proportion of manner types.

6.4 The syntactic structure of motion constructions

The following are the hypotheses and findings that guided the investigation of the syntactic aspect of motion descriptions in the L2 Spanish and L1 Spanish data.

It is likely that Spanish learners—from early on—hear, read, and talk about motion events using path verbs more often than manner with goal and source modifiers due to the pervasiveness of path verbs in oral Spanish (Berman & Slobin, 1994; Naigles et al., 1998; Slobin, 2004; *inter alia*).

- 3(a) It was hypothesized that L2 Spanish learners, across levels, will produce higher percentages of path verb tokens than manner verb tokens with *a* 'to', *para* 'to/towards', *hasta* 'up to/as far as' phrases to express the goal of a motion event.

The results supported Hypothesis (3 a) because learners across the three levels produced higher percentages of phrases indicating the goal of motion after path verbs than manner verbs. These findings also suggested that frequency of path verbs in the input had an effect from early on, since level 100 learners showed similar trends as

the other two levels of L2 Spanish. In addition, these same findings indicated that proficiency in the second language seemed not to be important as the beginner learners produced goal phrases in proportions comparable to levels 200 and 300.

- (3b) It was hypothesized that L2 Spanish learners, across levels, will produce higher percentages of path verb tokens than manner verb tokens with *de* 'off', 'of' and *desde* 'from' phrases to express the source of a motion event.

Overall, the results across the three levels of L2 Spanish showed that the percentages of path verbs with phrases indicating the source of motion were higher than those with manner verbs. The tendencies found in the L2 Spanish data supported Hypothesis (3b) and they confirmed that input frequency had an effect on the interlanguages of the L2 Spanish learners from early on. Results of the beginner learners corroborated that, independently of the levels of mastery in the second language, learners at all levels produced more source modifiers with path verbs than with manner verbs.

Empirical evidence has demonstrated that, unlike English speakers, Spanish speakers mention the manner of motion in manner expression with path verbs and, to a lesser extent, with manner verbs (Naigles et al., 1998). L1 English-L2 Spanish learners probably acquire the target construction proportionally to their exposure and production of the second language.

4. It was hypothesized that advanced learners, but not beginner or intermediate learners, will produce percentages of path verbs with manner modifiers which approximate those of the native-Spanish speakers.

The evidence obtained did not support Hypothesis 4. Across the three L2 Spanish levels, there were more manner expressions following manner verbs than path verbs. The data from level 300 learners suggested a weak tendency of the L1 Spanish use of manner modifiers. For example, the advanced learners produced raw

frequencies of path tokens that were larger than manner tokens. In addition, the advanced learners produced some of the same manner modifiers and verbs as the native speakers did.

Empirical evidence has demonstrated that in oral discourse, Spanish speakers, more so than English speakers, tend to produce manner verbs with no postverbal modifiers (Berman & Slobin, 1994; Naigles et al., 1998; Slobin, 2004; *inter alias*). Probably, as L1 English-L2 Spanish learners hear and speak more Spanish, they gradually rely on this rhetorical feature of the second language.

- (5a) It was hypothesized that the L2 Spanish oral narratives, across levels, will contain higher percentages of bare manner verbs than bare path verbs.

The evidence corroborated with what was predicted. Participants across levels uttered more manner verbs with zero postverbal modifiers than path verbs. The results showed variability in the percentages of bare verbs, though. For instance, the beginner learners produced slightly more bare verbs than the intermediate learners, but the advanced learners produced the highest percentages of bare manner verbs.

- (5b) The use of bare verbs by the advanced learners will approximate to the percentage of bare verb use by the L1 Spanish speakers in terms of higher percentages of manner verbs with no postverbal modifiers than path verbs with no postverbal modifiers.

According to the proportions obtained, level 300 learners produced more bare manner verbs than the other two L2 levels. Since this result approximated the L1 Spanish results, level 300 learners showed evidence of target-like use of bare verbs as predicted.

6.5 The use of path verbs in the receptive task in L2 Spanish

In the context of implicit learning, the results of the receptive and production tasks in L2 Spanish provided evidence regarding the way in which the acquisition of motion event descriptions in L2 Spanish developed. In the acquisition process, the kind of knowledge that learners used played a crucial role. While learners at levels 100 and 200 heavily relied on first language knowledge, learners at level 300 evidenced acquisition of the target pattern in the oral production of motion descriptions. And yet, the advanced learners did not completely converge with the L1 Spanish pattern which suggested that more time and exposure to the second language was necessary before learners could fully achieve the target pattern. In what way did the beginner and intermediate learners evidence dependency on L1 knowledge for the use of path and manner verbs in the receptive task and oral production task?

In the receptive task, learners at levels 100 and 200 used more path verbs in Spanish compared with English and, yet, they still did not conform to the target pattern. Results showed that learners still chose more sentences with manner verbs. However, results of the native-speaker group suggested that path, not manner, was the target of acquisition. The latter was the pattern that the more advanced learners also showed. In addition, the evidence in English showed that, as expected, all learners chose more sentences with manner verbs. However, only the beginner and the intermediate learners repeated this trend in Spanish. In other words, the beginner and intermediate learners seemed to believe that manner verbs read equally naturally in Spanish and in English. In this sense, it is possible to suggest that levels 100 and 200 learners—at least to some extent—relied on the first language when deciding on the naturalness of the phrasing of motion sentences in Spanish.

Also of interest was the absence of difference of levels 100 and 200 which demonstrated that further input frequency did not make the intermediate learners more sensitive to path in Spanish. Recall that one of the central assumptions has been that the Spanish input would contain high frequencies of path verbs. Therefore, it might be expected that level 200 learners would select more sentences with path

verbs since they had more opportunities to hear, read, and talk about motion events than the level 100 learners. The evidence indicated, though, that acquisition was a slow process with imperceptible differences between levels 100 and 200. By contrast, level 300 demonstrated acceleration with respect to level 200 as they reached the target pattern. In this sense, the results of the receptive task across the three levels of L2 Spanish indicated that native-like processing seemed not to have evolved in a strictly linear and uniform pattern (Meisel, Clahsen, & Pienemann, 1981), relative to proficiency and length of exposure to the second language. Instead, there were two distinct periods of acquisition. Learners at the beginner and at the intermediate levels began with non-target pattern of receptive processing and progressed slowly during the first two years of studying Spanish. Once they had reached the third year, they accelerated towards the target pattern. McDonald (1987), in a study of sentence interpretation in bilingual speakers of English and Dutch, also observed that exposure to the second language, measured in time, did not have any effect on cue strength acquisition. McDonald argued that the amount of exposure tends to vary even for learners who have spent the same length of time studying the second language. Perhaps, in an implicit learning environment, it is necessary to consider the individual differences among learners (Reber & Allen, 2000), the effect of the first language, more proficiency in the L2, as well as other external factors such as the quality and amount of feedback in the instructional environment, opportunities to access audio and written material in the second language, etc.

6.6 The developmental trends in the acquisition of motion verb types

The analysis of the L2 Spanish data as a corpus of path and manner verb types, the beginner and intermediate learners produced a vocabulary that was less native-like than at level 300. The differences in acquisition were determined by the variability in the percentages of manner types with level 300 being the closest to the native-speaker vocabulary.

The databases of path and manner verb types at levels 100 and 200 contained a vocabulary with higher percentages of path than manner types (see Appendix 21 (1) and 22 (1)). Why did learners at levels 100 and 200 show a preference for path types in the vocabulary? It is possible that the outcome observed may correspond to a general developmental process in language acquisition. It has been observed that English-speaking children as young as 17-20 months learn to talk about motion in terms of path despite the fact that they speak a strong manner language. Only at a later stage do children lexicalize the manner of motion in verbal forms (Bowerman, 1996; Choi & Bowerman, 1991; Hohenstein et al., 2004). It is likely that the simpler semantics of path is less cognitively demanding, making it more amenable for conceptualization at an earlier stage of acquisition.

Talmy (2000) proposed that a manner verb is a composite of two abstractly distinct schematic patterns of simpler motion: Motion and a Co-event (i.e., the manner or the cause of the Motion). Conversely, a path verb expresses Motion and Path but a Co-event is not typically conflated in the verb root. If a speaker wants to mention a Co-event element, the information would most likely appear as an independent constituent (e.g., adverbial or gerundive) (*ibid.*, p. 49). The semantic componential structure of path is therefore simpler compared to manner verbs. Thus, one could argue that L1 learners as well as L2 learners tend to rely on path verbs because it is less complex and so it increases processing resources (McLaughlin, Rossman, & McLeod, 1983; Posner & Klein, 1973; Ramsey, Jansman, Jager, Van Raalten, & Kahn, 2004). It is likely that until learners have received thousands of forms in the input and have gained overall linguistic proficiency that manner becomes lexicalized for them. In a study by Choi & Bowerman (1991), English-speaking children only began to lexicalize manner verbs by 20 months; whereas in the present study, the manner became minimally salient by the second year of the Spanish program.

Despite the larger percentages of path types in the database of level 200, there was an incipient tendency for greater lexicalization of manner with 7% more types

than at level 100. In contrast, the database at level 300 contained a vocabulary with equal proportions of manner and path types. Because the increase in manner was so evident from level 200 to level 300, it seems reasonable to assume that learners with even higher proficiency in Spanish could lexicalize manner in proportions that exceed those of path. In fact, the native-speaker database contained a vocabulary with 20% more manner than path types. This reaffirms the idea that as a result of more proficiency in Spanish and hundreds of hours hearing, reading, and talking about motion events, learners could build a vocabulary lexicalizing more manner than path types. But, in what way could the variability of manner be observed across the responses from the three L2 Spanish levels?

The composition of the three L2 Spanish databases (see Appendix 21 (1), 22 (1), and 23 (1)) shows an important overlap in manner types across the three levels. That is, learners produced some of the same manner types which appeared either in the three databases or in just two. This is the case of the following types: *abrir* 'open', *agarrar* 'grab', *amarrar* 'tie down', *apretar* 'squeeze', *aterrizar* 'land', *botar* 'dump', *caminar* 'walk', *correr* 'run', *despegar* 'take off', *lanzar* 'throw', *lanzarse* 'leap into', *nadar* 'swim', *perseguir* 'chase', *presionar* 'press', *remar* 'row', *tocar* 'touch', *tirar* 'throw', *saltar* 'jump', *volar* 'fly'.

Together with the vocabulary of manner verb types that was shared by all L2 learners, they also produced other manner types. What is interesting about these non-shared manner types is that they steadily increase in number, a fact possibly associated with more proficiency in the second language. For example, in the database of level 100 speakers there are 15 types and *agarrarse* 'hold on' is the only type (6.66%) not shared by the other L2 Spanish databases. But at level 200, 5 types (26.31%) from the total of 19 in the database are types not shared by the other L2 databases. In other words, verbs *atar* 'lace up', *bloquear* 'block', *marcharse* 'leave', *perseguir* 'chase', *tapar* 'plug' only appear in the intermediate level vocabulary. Likewise, the proportion of the non-shared vocabulary increases at Level 300. From a total of 25 manner types, 8 (32%) types are different verbs and not included in the

other databases as is the case of *abrirse* 'open', *cerrar* 'close', *clavar* 'nail', *eyectarse* 'eject', *girar* 'turn around', *tirarse* 'throw oneself', *oprimir* 'squeeze', *pulsar* 'push'. Finally, the database of the L1 Spanish speakers corroborates this rising trend for other types not included in the L2 Spanish databases. From a total of 45 manner types, 12 (26.66%) verbs represent not shared vocabulary. This is the case of manner types: *arrastrar* 'drag', *aserruchar* 'saw', *aventar* 'throw', *cortar* 'cut', *destornillar* 'unscrew', *expulsar* 'expel', *jalar* 'pull', *pegar* 'hit', *romper* 'smash', *sacudir* 'shake', *sellar* 'seal', *voltear* 'turn around'.

In short, the observation of the composition of the databases of manner types shows that the rising trend for more manner in L2 Spanish could be the outcome of two things. On the one hand, there is a natural increase in the size of the vocabulary which is proportional to the higher levels of mastery in the second language. On the other hand, the size of the lexicon responds to the inclusion of other manner verbs together with the shared vocabulary. In both cases, the L1 Spanish manner types corroborate the trends observed in the L2 Spanish databases.

What factors could have caused an increase in manner in the vocabulary of levels 200 and 300? In the absence of a measure of language input in the classroom, it is only possible to speculate with respect to the increase of manner verbs in the vocabulary. Possibly and as a result of the overall increase of L2 knowledge, the intermediate and advanced learners became exposed to a wider range of discourse situations. It is also likely that teacher talk was less impoverished as instructors did not need to restrict themselves to the repetition of just a few words. Instead, the instructors probably expanded the vocabulary using a higher type-token ratio and more complex semantic and syntactic constructions. In this way, level 200 and level 300 learners probably received input (both oral and written) which contained more instances of manner verbs to yield a more detailed description of motion. In this context, it is interesting to observe how the lexicalization of manner, rather than path, marked a difference in acquisition. More specifically, the absence of difference between levels 100 and 200 observed in the receptive task and in the language-group

analysis became disrupted as the rising increase in manner verbs showed that the intermediate learners progressively began to assimilate towards the level 300 pattern. By the same token, the vocabulary of level 300 approximated the L1 Spanish vocabulary with respect to the higher proportions of manner types. But as in L1 Spanish, the overwhelming preference for path tokens in oral production demonstrated that the manner vocabulary was put into active use only minimally. A question arises as to how the higher lexicalization of manner may affect the description of motion events in Spanish.

At present, there is a gap in the literature regarding the effect that the manner of motion has in Spanish discourse. It is known that Spanish speakers may produce vocabulary that is richer in manner types than path types (Hohenstein et al., 2006; Naigles et al., 1998; Özçalışkan & Slobin, 1999), but why speakers just rely on a few path types in usage is not known. Likewise, the evidence in this investigation is not enough to determine this state of affairs in the L2 Spanish motion descriptions. The evidence only suggests that manner types are indicative of native-like lexicalization relative to proficiency and length of exposure with level 300 learners approximating the L1 Spanish trend.

6.7 The discourse sequences underlying the highest path token frequencies

Corroborating the empirical evidence in oral Spanish, learners showed a clear preference for describing the path of motion in oral production. The proportions of path tokens at the three levels of L2 Spanish did not differ when compared to the oral production in English or the L1 Spanish results. And yet, a more detailed analysis revealed important differences in usage with levels 100 and 200 apparently relying on first language knowledge. Most notably, underlying the high path token frequencies, the beginner and intermediate learners produced two path types—*ir-volver/regresar*—that formed a narrative sequence similar to the one found in the English narratives—*go-come*. But in the advanced learners and in L1 Spanish, there were three types that formed the *ir-salir-regresar* verb sequence.

Recall that in the results of level 100 and level 200 (see Table 13), learners uttered more frequencies of the path verb *ir* 'go'. As to the second most frequent type, the beginner and the intermediate levels produced two different, but synonymous verbs (level 100, *volver* 'return'; level 200, *regresar* 'return'). However, in the third type with highest token frequency, there was no agreement. Both groups produced two semantically unrelated motion types (level 100, *entrar* 'enter'; level 200, *caer* 'fall'). In other words, level 100 and 200 speakers mainly produced the oral narratives partitioning the entire visual stimuli into two sequences: figures moving in some direction and figures moving back in the opposite direction. Linguistically, this partitioning of the stimuli translated into the *ir-regresar* sequence which strongly resembled the sequence found in English.

As shown in Table 14, the beginner and intermediate learners coincided in producing *go* and *come* as the two highest token frequencies in English and there was no agreement on the third path verb type. While Level 100 learners produced path verb *fall*, level 200 learners produced path verb *get*. It seems that underlying the path tokens in English, the beginner and intermediate learners produced the *go-come* sequence that also partitioned the visual stimuli into two sequences: figures moving in some direction and figures moving towards a point. In addition, the semantic overlap between the L2 Spanish *ir-regresar* sequence and the English *go-come (back)* is fairly evident since the latter could be translated into the Spanish verbs. The strong resemblance in path token production in L2 Spanish and English suggested that the beginner learners probably visualized and linguistically encoded motion events in the oral narratives in L2 Spanish resembling the way they visualized and linguistically encoded motion events when they told the oral natives in their native English. Furthermore, it is interesting to appreciate how the absence of difference between level 100 and level 200, first observed in the results of the receptive task, was repeated again. Considering that the intermediate learners were in the second year of studying Spanish, they could have exhibited a different pattern of path verb usage.

But, as in the receptive task, abandoning the use of L1 knowledge was a slow process and change was evident only at level 300.

Indeed, the advanced learners evidenced a pattern of path-usage in Spanish that disrupted the absence of difference of levels 100 and 200. However, when producing the oral narratives in English, level 300 participants presented a similar pattern of path-usage as level 100 and level 200 participants did. As shown in Table 14, level 300 learners also produced most of their motion schemas relying on path verbs *go* and *come*. That is, the advanced learners—like level 100 and level 200 speakers—mainly profiled the figures in the stimuli as displacing in some direction, but then moving back towards a point. However, when narrating the Pink Panther stories in the second language, the advanced learners presented a pattern of path-usage that was clearly different from those of level 100 and level 200. Underlying the highest token frequencies in L2 Spanish, the advanced learners produced a sequence of three path types that almost matched the L1 Spanish, except for the order in which verbs *salir* 'exit' and *ir* 'go' appeared.

As shown in Table 13, the advanced learners like—levels 100 and 200—produced more token frequencies of path verb *ir* 'go' followed by path verb *salir* 'exit' and path verb *regresar* 'return'. In the databases of levels 100 and 200, *salir* 'exit' only had a frequency of 8 tokens and 15 tokens, respectively. Conversely, the native speakers had *salir* ranking highest which determined that the target of acquisition was the sequence *salir-ir-regresar*, but the advanced learners produced *ir-salir-regresar* instead. Despite this difference in the orders of path verbs *salir* 'exit' and *ir* 'go', the level 300 learners seemed to have produced the oral narratives in L2 Spanish partitioning the visual stimuli into three transitions. That is, the sequence of three path verb types that the advanced learners produced suggest that the advanced learners probably visualized and linguistically encoded motion events in the oral narratives in L2 Spanish resembling the way the L1 Spanish speakers visualized and linguistically encoded motion events as the advanced learners also tended to produce utterances which described figures leaving, figures going, figures returning as in the

L1 Spanish oral narratives. Furthermore, the fact that level 300 participants, but not level 100 or level 200 participants, produced the *ir-salir-regresar* verb sequence in L2 Spanish suggests some form of acquisition of the native-Spanish description of motion events. Most importantly, the advanced learners like level 100 and level 200 learners seemed to have visualized and linguistically encoded the motion events in English partitioning the visual stimuli into two transitions as it was evidenced by the high frequencies of path verbs *go* and *come*. But unlike the less proficient Spanish learners, the production of path verb tokens of the level 300 participants suggests that these learners did not reproduce the partitioning of the visual stimuli into two transitions when speaking in Spanish. Put differently, the highest token frequencies of path verbs show that English speakers from the three groups partitioned the visual stimuli into two transitions (i.e., figures moving in some direction and figures moving back towards a point) when producing the oral narratives in English. But when producing the oral narratives in Spanish, the highest token frequencies of path tokens in L2 Spanish revealed that only level 100 and level 200 participants could have transferred the English-like partitioning of the data into the oral narratives in the second language. This possibility is supported by the high frequency of path verbs *ir* 'go' and *volver/regresar* 'return' which strongly resembled the English sequence *go-come* as mentioned earlier. Conversely, the advanced learners seemed not to have transferred the English-like partitioning of the data (i.e., figures moving in some direction and figures moving back towards a point) when producing the oral narratives in the second language. As mentioned earlier, the production of path verb tokens at level 300 closely resembled the native-Spanish production of path verb tokens which predominantly relied on the *ir-salir-regresar* path verb sequence. Finally, it is important to indicate that the difference in token frequencies of the path verbs *ir* 'go' and *salir* 'exit' produced by the level 300 learners and the token frequency of *salir* 'exit' and *ir* 'go' produced by the native speakers possibly responds to a crosslinguistic interference of English same as in levels 100 and 200. That is, the advanced learners could have also been affected by their native English because they produced high frequencies of *ir* 'go'. And yet, the possible crosslinguistic effect was limited to the verb *go* and its Spanish equivalent *ir*, but not

the path verb *come* and its Spanish equivalent *regresar* as observed at levels 100 and 200.

In sum, the evidence obtained in the receptive as well as the oral production tasks showed that in an implicit context, the acquisition of motion descriptions does not evolve linearly. Initial learning relied on first language knowledge as learners at levels 100 and 200 assumed that Spanish prefers manner in the receptive task, produced a vocabulary only of path types, and produced the *ir-regresar* verb sequence which resembles the English *go-come* verb sequence. Drawing on Meisel, Clahsen, and Pienemann (1981) a more linear progression of the acquisition of motion event descriptions should have shown the transition from the L1 knowledge to the L2 knowledge gradually and uniformly developing. This means that the intermediate learners would have shown more use of the target-language in both tasks. And yet, the evidence indicated that the intermediate learners barely established a significant linguistic difference from the beginner learners. By contrast, level 300 learners showed more native-like preference for the path of motion in the receptive task, lexicalized the manner of motion in the vocabulary, and produced a path verb sequence which resembled the *salir-ir-regresar* verb sequence in L1 Spanish. In this sense, the present cross-sectional investigation argues against the assumption that the process of second language acquisition evolves as strictly linear and uniform as cross-sectional studies which attempt to determine developmental stages in SLA assume (Meisel, Clahsen, & Pienemann, 1981, p. 113). The opposite trends exhibited by levels 100 and 200 vis-à-vis level 300 learners suggest that input frequency may strengthen path-based collocations (Bybee, 1995; Bybee & Hopper, 2000; Bybee & Thompson, 1997), once learners have been in contact with the second language for an extended period of time (at least two full years). Moreover, the transition between the use of L1 knowledge to an increasing use of second language knowledge at the receptive and production level may not entirely depend on input frequency. It is likely that a combination of more proficiency, extensive linguistic production and numerous instances of thinking in the second language may help learners begin to conceptualize motion differently. At the time of study there was no information about the exact number of learners who progressed through the different levels of the Spanish

program. However, it is possible that the results observed in this study may reflect a general pattern of acquisition of motion verbs in L2 Spanish and, if this were the case, the consistency with which level 300 learners approximated to the L1 Spanish of thinking for speaking about motion events (McNeill & Duncan, 1998; Slobin, 1987, 1991, 1996, 2003) could be observed in Spanish learners enrolled in other Spanish programs.

6.8 Speaking about motion events in English

In the English oral narratives, participants produced a vocabulary that contained larger proportions of manner types than path types, corroborating previous studies (Hohenstein et al., 2006; Naigles et al., 1998; Özçalışkan & Slobin, 1999; Slobin & Bocaz, 1988, *inter alias*). In their experimental narratives, however, participants showed a different trend as they uttered higher percentages of path tokens than manner tokens. Although, these percentages were below those for L2 Spanish, they were still higher than the percentages of manner tokens in English. At level 100, learners produced 54% path tokens; at level 200 59% path tokens; at level 300 58% path tokens. It seemed as if the participants did not talk about motion using a large lexicon of manner types.

A review of the highest token frequencies in English showed that speakers produced multiple examples of two path verbs *go*, *come*, and two different ones *fall* and *get* (see Table 14). Contrary to all expectations, participants produced more path tokens than manner tokens in the English oral narratives. Neither the studies of *the frog story* (Berman & Slobin, 1994; Özçalışkan & Slobin, 1999; Papafragon et al., 2001; Slobin, 1996, 1997, 2004; Slobin & Bocaz, 1988; Slobin & Hoiting, 1994) nor the studies that employed dynamic video images (Hohenstein, 2005; Hohenstein et al., 2006; Naigles et al., 1998; Naigles & Terrazas, 1998) reported motion verb usage that deviated from a preference for manner tokens. So, how is it possible to account for the token frequencies in the English oral narratives? What could account for such disparity with the previous evidence?

Two possible explanations are in order. First, the kind of language elicited in the oral narratives of *the frog story* (Berman & Slobin, 1994; Özçalışkan & Slobin, 1999; Papafragon et al., 2001; Slobin, 1996, 1997, 2004; Slobin & Bocaz, 1988; Slobin & Hoiting, 1994), encouraged participants to describe orally the picture storybook as individual images. This means that the complete story was not produced as synthetic and connected discourse. Moreover, participants could maintain a flow of the story just by looking at the sequences of images and talking about them. Likewise, in the studies that employed dynamic video images of motion events, participants also watched and described images individually. In addition, participants were only encouraged to say one sentence at a time (they could speak more if they wanted to) with no need to compose a narrative as the images were completely unrelated.

By contrast, the sixty participants in the present study were presented with a somewhat different situation not just in terms of linguistic demands, but cognitive demands as well. The two video excerpts of the *Pink Panther* cartoon used as the stimuli formed two short unrelated stories. The *Pink Panther* as the principal character appeared in both sequences, but there were two other secondary characters in both stories: a cuckoo bird and a jet plane. Participants only saw the story once and during the production of the oral narratives, participants were not exposed to the stimuli again. So, the participants produced the narratives relying on the amount of information they could recall. Also of importance was the fact that participants were told that the person who was going to listen to them knew nothing about the stories. This means that participants probably made an extra effort to be clear and unambiguous when telling the stories. In addition, the sixty oral narratives were produced in sequences of connected speech that closely resembled discourse production in naturalistic situations. It is important to take into account, then, the fact that the motion descriptions in this study were part of a much longer and complex discourse contexts than in previous studies. It is possible that the prominence of path tokens in the English oral production reflected a simplification of the language due to the cognitive demands of the task. The English speakers abandoned the detailed

descriptions of the internal properties of motion events (i.e., manner verbs) and resorted to high frequencies of fewer semantically "simpler" (i.e., less specific) path verbs. By the same reasoning, one could argue that the cognitive demands in L2 Spanish were even greater; that is why, learners produced such high percentages of path tokens in the oral narratives.

As mentioned earlier, the semantic structure of manner verbs is inherently more complex than that of path verbs. With two distinct schematic patterns of simpler motion subsumed in the same root (Motion and a Co-event), manner verbs seem to impose more demands on the speakers' limited processing resources (Hasher & Zacks, 1979, 1984; McLaughlin et al., 1983; Posner & Klein, 1973; Ramsey et al., 2004; Shiffrin & Schneider, 1977). If extra linguistic factors (e.g., recall of information, production of connected discourse) increase the cognitive effort, the repetition of a small, but useful number of path verbs could alleviate the task. Tannen (1989) noted that frequency of repetition of similar types enables a speaker to produce language in a more efficient and in a less energy-draining way (see also Norrik, 2000). In essence, in the context of a cognitively demanding task that required attention and consciousness for an extended period of time, participants compensated for the effort of responding in the second language by choosing verbs of a simpler semantic structure (i.e., path verbs) as opposed to verbs with a more complex semantic structure (i.e., manner verbs). In the absence of further empirical evidence, the explanations behind the trends for higher path tokens in English and L2 Spanish should be considered as suggestive and speculative rather than conclusive. What seems to be clear is the need for further research that could explore in more detail the relationship between frequencies of path and manner tokens in the Spanish language of native speakers and the production of spontaneous discourse at different levels of complexity.

6.9 The databases of types and tokens

The incorporation of the corpus analysis approach offered the possibility of obtaining more subtle, but perhaps more conclusive evidence about the acquisition of motion event descriptions in L2 Spanish. Crucial to this approach was the creation of *type/token* databases. This form of classification helped distinguish the vocabulary from the instances of language usage in the L2 and L1 Spanish oral narratives as well as in the English oral narratives. In fact, the analysis of the verbs as types confirmed that the lexicalization of motion in Spanish was not completely dependent on the path of motion. By contrast, the database of the L1 Spanish participants corroborated previous findings which indicated that this Romance language favours the lexicalization of the manner of motion at the level of types. In other words and following Talmy's proposal, the Spanish language should exhibit a preferential tendency for the lexicalization of the path of motion rather than the lexicalization of the manner of motion. However, the evidence obtained in the vocabulary of motion verb types indicated that the L1 Spanish speakers lexicalized the manner in path types in percentages that exceeded those of path verb types. Equally important was the observation that the L2 Spanish learners followed a similar trend. The databases at levels 200 and, specially, at level 300 showed that, as far as the vocabulary was concerned, learners also lexicalized the manner at the level of types and this could also be interpreted in favour of the acquisition of the motion verb use in the second language. It is important to mention though that, at present, there seems to be less clarity with respect to the lexicalization of the manner in the L1 Spanish vocabulary, but the preferential trend for the path of motion in oral production. The different studies which have empirically shown this dichotomy in Spanish have not fully explained whether the Spanish typology would be motivated by a large number of manner verbs which end up being applied fewer times compared to a relatively smaller number of path verbs which are more productively used in production. In this sense, the evidence for the lexicalization of the manner of motion shown by level 200 and 300 learners requires further evidence in native Spanish use in order to be more fully understood.

Likewise, the classification of the data in terms of tokens also provided invaluable evidence about the time-course of L2 acquisition. As discussed in Sections 5.3.2 and 5.3.3, the analysis of the highest token frequencies revealed the existence of underlying verb-sequences which suggested how the L2 learners produced motion event descriptions in connected speech in Spanish. Furthermore, the classification of types and tokens also proved to be valuable in the analysis of the English data. As discussed in Section 5.3.4, the disparity in the lexicalization of motion types and tokens revealed the possibility that, in usage, English speakers may resort to path-based lexicalization in spontaneous discourse.

The classification of the data for types and tokens also helped clarify the rather vague terms in which the lexicalization of motion has been defined for Spanish and English. Numerous crosslinguistic studies on motion in verb-framed languages (such as Spanish) versus satellite-framed languages (such as English) have drawn on the definition proposed by Slobin after Talmy. Following this tradition, Özçalışkan (2005) made reference to Slobin (2000; 20003, p. 5) to indicate that speakers of verb-framed languages use the main verb to encode path, but sentences in these languages do not have a slot where manner could be encoded. In contexts in which manner is salient, speakers rely on subordinated manner verb constructions such as gerunds or adverbs (e.g., *fue corriendo* 'went running'). By contrast, speakers of satellite-framed languages reserve the main verb for the encoding of manner, but express path in satellites. Consequently, these speakers encode manner more habitually, may develop a richer lexicon of manner verbs, and possibly make finer lexical distinctions within the domain of manner (Özçalışkan, 2005, p. 209).

The results obtained in the corpus analysis raise doubts about this definition. First of all, it is not possible to know whether the main characterization in Slobin's definition—and in Talmy's for that matter—correspond to type or token frequency. In other words, there is no clarity whether the trends Slobin describes correspond to motion expressed in the vocabulary or they are patterns of language usage. The analysis to the database of the L1 Spanish speakers showed that in the experimental

narratives, speakers did in fact resort to higher proportions of path tokens in the main verb. However, the trends in motion types indicated that Spanish speakers did not constrain themselves to the expression of manner only in subordinated constructions. Recall that the syntactic analysis showed that speakers produced high proportions of manner modifiers after path tokens in usage. In addition, the analysis to the vocabulary showed that speakers also produced higher proportions of manner than path in motion verb types (60% and 40%, respectively). This double lexicalization of manner (in verb types and manner modifiers) indicated that Spanish speakers may be more sensitive to the manner of motion than Slobin's characterization suggests and they may express it beyond those contexts in which manner is evidently salient (see Naigles et al., 1998). In this sense, a careful distinction between the patterns of motion types and tokens helps disentangle another subtle and less transparent aspect of the lexicalization of motion events in Spanish.

With respect to English, the corpus analysis showed that the three English databases contained higher proportions of manner-based verbs, corroborating Slobin's characterization for English as a satellite-framed language. But, the results in motion verb usage observed in the oral narratives in English showed that the proportions of path tokens exceeded those of manner verb tokens. These results opened up the possibility that speakers of a satellite-framed language may have more than one possibility of lexicalizing motion in oral production. More specifically, it is possible that English speakers could vary the way they lexicalize the concept of motion from using fewer manner verbs to using more path verbs as a result of factors in the communicative context. As explained earlier, the proportions of path tokens in English occurred while participants recalled information when telling a story in connected speech, an activity that could have imposed high cognitive demands on the speakers. The question that arises has to do with whether English speakers would present tendencies for the use of path verbs in connected discourse in contexts other than the experimental narratives produced in the present study. Thus far, the empirical evidence gathered in previous studies has consistently shown that English speakers use more manner verbs than path verbs when describing motion events. However, the

methodology employed in those studies has not considered the production of motion descriptions in connected speech. Participants in previous studies have described visual stimuli presented as individual and unrelated motion scenes and while they were still exposed to the stimuli. For this reason, less is known about the way English speakers lexicalize motion events in connected discourse and when speakers are no longer visualizing the stimuli. What seems to be clear is the need for further research which may establish comparisons of English speakers producing on-line and off-line motion event descriptions in connected speech. Until then and in the absence of further evidence of motion event descriptions in connected speech in English, the path token frequencies of the experimental narratives in this study should be interpreted with caution.

Finally, the evidence of types and tokens in the L1 Spanish database raised some doubts regarding a correct interpretation of the notion *language productivity* as proposed by usage-based studies (Bybee, 1995; Bybee & Hopper, 2001; Bybee & Thompson, 1997, Langacker, 1988, 1999). As mentioned in Chapter 2 section 2.5, empirical evidence has indicated that type frequency is an indicator of language productivity when a construction is not restricted to just a few types. Instead, speakers realize that they can include more types to build the same construction. In this way, high type frequency results in high frequency of usage of a construction which, in turn, makes it more accessible in use. This same empirical evidence demonstrated that token frequency leads to entrenchment of a linguistic form.

Considering the evidence in the L1 Spanish database, manner was more productive than path as speakers included a wider variety of types under manner lexicalization than path lexicalization. But, this apparent high productivity of manner did not lead to high frequency of usage. By contrast, the frequencies of path tokens determined that this was the trend of motion usage in oral Spanish. In essence, the evidence of motion in L1 Spanish indicated that, at least, in oral production, the type-token relationship may not necessarily function unequivocally as suggested by usage-based studies. That is, high type frequency of a language form—in this case a

lexicalization pattern—may not guarantee its high frequency of usage. The question that arises is whether manner could be considered productive in L1 Spanish when speakers produced higher token frequencies of path in usage. If not, how could the definition of language productivity as proposed by usage-based studies be reconciled with the evidence of manner types and path tokens in L1 Spanish?

In sum, the corpus analysis approach demonstrated its value as an insightful and sensitive method of data analysis. Most of all, the distinction of types and tokens offered the possibility of capturing some subtle aspects about the lexicalization of path and manner not just in L2 Spanish, but in native-Spanish speakers, as well as in L1 English speakers.

6. 10 Attention to path verbs in the input

It is rather unlikely that learners would have incorporated forms from input sources into their interlanguages unless they also exercised some form of attention to the input language. There are clear indications in the literature that in a context of implicit learning, attention may condition the acquisition of forms from the input (Mitchell & Myles, 1998; Schmidt, 1990, 1993, 1994b, 2001; Williams, 2004). Hanson and Hirst (1988), who support the idea of learning from frequency of input forms while performing in events (i.e., associative learning), disregard any outcome if individuals are not attending. Likewise studies in SLA indicate that instructional activities probably contribute to learners being more attentive to the forms in the language while following explanations from the instructors, during practice time with other peer students, or while working with the instructional material. At this point it is important to clarify that "attention" should not be understood to mean that the Spanish learners managed to extract explicit rules from the input. The complexity of the lexicalization of motion, as is the nature of contents of implicit learning (Bornstein & Masling, 1998; Mathews et al., 1989; Robinson, 1996) made it less amenable for an easy induction of rule formation. Instead, it is more likely that the

Spanish learners just attended to elements of the surface of motion constructions in the input (Schmidt, 2001).

Schmidt (1990) noted that the instructional activities in an L2 classroom enhance the possibility of perceiving some linguistic forms as more salient in the input. Instruction produces some kind of priming effect which may preferentially alert learners to articulate constructions. Sato (1986) suggested that conversational interaction, the sort of task that is mostly promoted in current Spanish language classes, enhance the possibility of some function-to-form and form-to-function mappings becoming more salient to learners. One could also argue that the prominent position of path and manner verbs in a clause may also contribute to learners noticing them in the input. If path verbs were conveyed in a bound-morphological form rather than a free morpheme, learners would probably notice them less. There seems to be consensus in the literature that forms which are bound, phonologically reduced, unstressed tend to go unnoticed in the input; thus, they are acquired late (Henrichsen, 1984; Schmidt & Frota, 1986; Slobin, 1985).

One of the few studies on the relationship between noticing and the emergence of forms in language production was published by Schmidt and Frota (1986). The authors found important connections between the reports of what Schmidt had noticed during his experience learning Portuguese and the utterances that he actually produced. In particular, they found that there was an interesting correlation between those forms which were frequently presented in the input and Schmidt's tendency to produce them versus those that had a lower frequency of appearance which he seldom produced. Of direct relevance for the present study is the fact that Schmidt realized that the language he produced were forms that he had noticed that people had said to him. At a speculative level, and in the absence of a direct measure of the input learners received in the classroom, the prominence of the path of motion in the narratives suggests that learners noticed path more than manner verbs by speakers describing the idea of change of location. As a corollary, those learners who probably paid more attention in class, naturally received the most

benefit of incorporating the form-meaning mappings from the input. Obviously, it is not possible to assume that all learners who participated in this study were usually more attentive. It can be suggested, instead, that attention to forms in the input increased proportionally with the frequency with which they appeared in the input. Thus, if the L2 Spanish learners noticed path constructions in the input, they noticed them as a result of their being more highly frequent in the input.

6.11 The acquisition of the syntax of motion constructions in L2 Spanish

In what way did the results of the syntax of motion constructions corroborate the patterns of acquisition of the lexico-semantic aspect in L2 Spanish? The analysis of the syntactic structures showed that learners across the three levels produced constructions similar to the L1 Spanish group. And yet, could all the results be equally indicative of acquisition of the syntax of motion verbs in L2 Spanish? Consider, for example, the results of path verb tokens with goal and source modifiers. Although all L2 Spanish learners produced results which resembled the L1 Spanish pattern, it is not clear whether those results evidence acquisition of this aspect of the syntax of motion verbs or not. As mentioned earlier, there is the possibility that learners were exposed (explicitly or implicitly) to path verbs modified by specific prepositions (e.g., *a* 'to' or *de* 'off/of') and so they began to use those verbs as chunks of language. That is, learners produced path verbs with prepositions semantically unanalyzed as goal or source modifiers. A review of some Spanish textbooks indicated that at the introductory level, learners are presented with the path verb *ir* 'go' modified by preposition *a* 'to' express the idea of *going to a destination or expressing future plans* (Borrás, Hendrickson, Henigham, & Velásquez, 2006; Castells, Guzmán, Lapuerta, & García, 2006). Thus, learners begin to produce *ir* 'go' with the preposition already incorporated and, it is likely, that a similar case occurs with path verbs followed by the prepositions which encode the origin of a motion event (i.e., *de* 'off/of', *desde* 'from'). For this reason, the evidence obtained in the analysis of the goal and source modifiers seems to be less transparent in terms of levels of acquisition of the syntax of motion verbs across levels. Likewise, in the case

of the results of bare verbs, the L2 Spanish learners across levels presented tendencies that resembled the L1 Spanish pattern since all learners uttered higher percentages of manner verbs than path verbs with no postverbal modifiers. However, previous studies have shown that in English, speakers also tended to utter more manner verbs than bare path verbs (Naigles et al. 1998). Moreover, Naigles et al. (1998) and Naigles and Terrazas (1998) argued that there is a tendency for manner verbs more than path verbs to be uttered in clause-final position since the meaning of manner verbs seems not require mention of a ground to convey the idea of motion. Thus, the propensity to use more manner verbs than path verbs observed in the L2 Spanish oral narratives could, in fact, reflect a degree of acquisition of this aspect of motion verbs in the second language; however, this evidence has to be considered with caution as Spanish and English overlap in this aspect as already mentioned. The possibility that the L2 Spanish learners could have transferred the use of bare manner verbs from English while speaking Spanish remains open. By contrast, the results of manner modifying expressions seem to be more revealing of the acquisition of the syntax of motion verbs since the two languages contrast for the kind of motion verbs that tend to be modified with manner expressions. While Spanish tends to have more path verbs followed by manner expressions, English manner verbs tend to be modified by manner expressions (Naigles et al., 1998). In this sense, the evidence obtained in L2 Spanish did not support the prediction that learners would use the target-construction (i.e., path verbs followed by manner expressions) and learners at level 300 could weakly resemble the L1 Spanish use of manner expressions. For this reason, the evidence obtained in the four analyses of the syntax of motion verbs (goal modifiers, source modifiers, manner expressions, and bare verbs) should be considered speculative more than conclusive. Although, the results, in general, supported the predictions for the syntactic aspect of motion verbs, the lack of clarity with respect to the use of path verbs followed by prepositions as well as the overlap in the use of bare manner verbs does not allow drawing any clear conclusion. Results for the use of manner modifiers, the aspect of the syntax of motion verbs which could have yielded more straightforward results, the evidence did not support the prediction.

However, level 300 learners more consistently approximated the native-speaker pattern better than the other two groups. For example, when talking about the goal of motion, both groups uttered more *a* phrases following the same path types: *regresar* 'return' and *ir* 'go'. Likewise, both groups mentioned the source of motion with path verbs using *de* phrases following the same path verbs *salir* 'exit', *caerse* 'fall down', *escaparse* 'escape'. In the expression of the manner of motion, there were some subtle trends that indicated a certain approximation of level 300 to the native-speaker pattern as both groups produced more gerunds namely following path types *ir* and *salir*. As for the production of motion verbs with no postverbal modifiers, both groups produced more bare manner verbs with different types. However, they produced some of the same bare path types like *salir* 'exit', *caerse* 'fall down', *regresar* 'return', *ir* 'go', *subir* 'go up'. As previously observed, the results of the syntactic constructions of level 300 learners corroborated the production of path verb tokens in oral production discussed above. Lexically, level 300 learners showed that when watching the *Pink Panther* stories, they seemed to have focused their attention on some of the same scenes which were salient to the native speakers as they tended to produce high frequencies of path verbs which described the figures leaving-going-returning. Furthermore, in the verbalization of what had been visually perceived, the advanced learners showed great accuracy with respect to the syntactic constructions as well as the lexical items produced by the native speakers. Givón (1990) argued that when the learner is able to recognize a sufficiently large corpus of words automatically, word recognition would yield processing resources necessary for the acquisition of grammar. Van Patten (1989, 1990, 1996) endorsed the one-at-a-time-only sequence of acquisition—first lexicon then grammar—arguing that the limited attentional resources are first directed to the lexicon since message meaning is contained in the lexicon. Only when learners have achieved enough comprehension of the second language can processing resources be allocated to formal features of the language. It is likely that the degree of syntactic accuracy shown by level 300 could, in part, respond to a relatively large lexicon of motion verbs (manner and path) that facilitated comprehension. As a result, the advanced learners could attend to the syntax of motion constructions with relative ease. After all, level 300 learners were in

their sixth semester of Spanish which means that they had most likely processed motion constructions with tens of thousands of types presented as innumerable tokens as is usually the case for fluent language users (N. Ellis & Schmidt, 1997). In this context then, it is possible to argue that the degree of accuracy at level 300 reflected some acquisition of the syntax of motion constructions. With further exposure and proficiency in L2 Spanish, level 300 learners may be able to continue a developmental process that ends up in the complete achievement of the target form as previous studies in SLA have reported (Höhenstein et al., 2006; Navarro & Nicoladis, 2004, 2005; McDonald, 1987; McDonald & Heilenman, 1992).

7. Conclusion

The concept of motion responds to a universal conceptual scheme which has a kinaesthetic basis (Cadierno & Lund, 2004). Despite this universality, language-specific constraints determine the aspect of motion that is cognized and linguistically expressed at the lexical level.

The present study demonstrated that the form-meaning mappings for the expression of motion can be learned implicitly in the Spanish classroom when there is high input frequency. Crucial indicators of acquisition were the trends of recognition at the receptive level and verb sequences underlying the patterns of path token frequencies. Learners in the early stages revealed greater sensitivity to recognize the manner in written motion descriptions (i.e., the more pervasive feature in English) and in oral production, the *ir-regresar* sequence indicated that the beginner and intermediate learners described motion scenes resembling the description of motion produced in their native English. At higher levels of proficiency, learners were able to recognize the path in written motion descriptions (i.e., the more pervasive feature in Spanish) and in oral production, the *ir-salir-regresar* sequence indicated that the advanced learners—but not the beginner and intermediate learners—visualized similar motion scenes that the L1 Spanish speakers also described. In this sense, the evidence in this study supported implicit learning at an advanced level of L2 Spanish. Moreover, the findings seemed to contradict Doughty (2003), and Slobin (1991), because the L2 learners could successfully overcome the exceptionally resistant developmental sharpening effects determined by the first language. Contra Slobin (1991), the study demonstrated that a conceptual category like motion is not solidly and definitely shaped by the first language. Adult Spanish learners could incorporate the semantic features of the second language and lexicalize the concept resembling the target-language in important ways. It is necessary to mention that time was a crucial factor because it was only after two years of being in the Spanish program that level 300 learners resembled the target pattern to express motion.

Furthermore, the results in the receptive and production tasks suggest the kind of developmental process that second language learners probably follow to acquire other conceptual categories of human cognition. In the case of a concept like motion, the evidence showed that learners slowly progressed from a reliance on first-language knowledge to a reliance on the target-language mappings. Despite the slow progression, the developmental process showed that second language learners were able to overcome crosslinguistic differences, something that could be attributed to the fact that both languages share the concept of motion. As suggested by Talmy (1988), the conceptual system which underlies linguistic differences is not language-bound. This means that, independently of the linguistic code, human beings encode similar concepts in communication. In a sense, this study demonstrated that level 300 learners could continue to talk about motion, but now successfully encoded motion notions in the form-meaning mappings of the second language. As a consequence, learners could perceive other aspects of the meaning of motion. It would be interesting to find out whether second language learners could present a similar developmental process in the implicit acquisition of other concepts of a universal domain. Or, perhaps, it could be possible to compare whether learners would follow a similar route for those notions which are explicitly taught in the second language classroom.

7.1 Limitations of the study

The following are some aspects of the study which represented a limitation. However, in future study of the acquisition of motion event descriptions at different levels of L2 Spanish should consider implementing some of the ideas which are proposed.

1. Leaving deviant postverbal modifiers and other sources of data without coding was a more conservative position since this was a first approach to explore the acquisition of motion verbs in learners at different levels of L2 Spanish. It is acknowledged, though, that this decision could influence the results because learners may appear

more native-like. Possibly a future study should attempt to avoid excluding source of data from coding and consider coding lexical or syntactic forms which deviate from the target-pattern as errors and incorporate them to the general analysis.

2. The sampling of participants relied on the level in the Spanish program the participants were enrolled at the time of study. However, it should be acknowledged that probably not all learners advance through the Spanish courses or achieve similar levels of proficiency. A future study should incorporate some measurement of proficiency in the second language before learners participate in the study. In this way, the groups of participants would be formed on, at least in theory, similar levels of L2 knowledge which, in turn, should help control for internal variability.

3. It is possible that the population sample was affected by self-selection bias. The uneven number of participants from different genders, particularly at levels 100 and 200, was different to the more even distribution of participants for gender at level 300. In a future study, and whenever possible, it would be recommendable to control that language groups have equal number of female and male participants.

4. It is possible that the Spanish language of the native-control group was affected by the second language as those participants were living in an English-speaking country. Although the results of the L1 Spanish speakers in the present study did not deviate from previous evidence (Naigles et al., 1998), the possibility remains that monolingual Spanish speakers would behave differently. In theory, a control group should be formed by monolingual speakers of Spanish; however, this raises the question of the dialectal variety which would be more representative of the language (i.e., Spanish from South America, Central America, or Spain). It would be advisable that in a future study, the native-control group is formed by L1 Spanish speakers (monolinguals or bilinguals) living in a Spanish-speaking environment to decrease the possibility of interference from English.

5. The procedure of assigning either English or Spanish to begin the experiments aimed at counterbalancing the groups of speakers for the language factor. In this way, the risk of order effects that could arise if the same language order had been maintained (e.g., Spanish first – English second or vice versa) was, at least in theory, controlled. However, the risk of order effect was probably not completely eliminated since the language which participants completed the second task in (e.g., the production task) was the same language they completed the first task (e.g., the receptive task) in. That is, if a participant completed the receptive task in Spanish first, the story-telling was first in Spanish and then in English. Perhaps a more accurate procedure for a future study should be counterbalancing for both language and task at the same time. For example, if a participant completes the receptive task in Spanish first and then in English, s/he completes the production task in English first and in Spanish second. It is likely that this strategy may more accurately control for any order effect that may arise.

7.2 Some methodological issues

Regarding some methodological issues, DeKeyser (2003) has raised concern about the way L2 research on implicit-explicit learning has been conducted. One of the main problems deals with the length of exposure to the target language forms. It has been a concern in the literature that laboratory studies in cognitive psychology and classroom studies on implicit learning have been conducted in relatively short-periods of time (Beretta & Davies, 1985; De Jong, 2005; DeKeyser, 1995, 2003; N. Ellis, 1993; Long et al., 1998), with 12 weeks being the longest treatment (DeKeyser, 1995). As a result, these studies have shown weak evidence of learning as longer time is needed to integrate the patterns from the input and transform them into implicit knowledge (Chaudron, 1985; DeKeyser, 2003; Gass, 1997; Gass & Mackey, 2002; Long, 1996; Pica, 1994). As a corollary, there has been a growing scepticism with regards to the evidence obtained in implicit studies (DeKeyser, 2003). In the present investigation, participants were not affected by a limited access to the target forms. From the beginning, it was assumed that participants could have uncontrolled access

to motion constructions, inside and outside the classroom, as motion is an important and recurrent topic in human communication (Langacker, 1987, 1991). Thus, learners could hear and talk about motion often. In this way, this study could avoid the critical issue of low input frequency during pre-testing sessions as participants were being exposed to motion constructions prior to their participation. The receptive and production tasks simply collected samples—at a given point in time—of a language construction that participants were already using. If differences in the amount of exposure existed, it could be attributed, among other factors, to the differences in the stages of acquisition. Level 100 learners were in their first-year course; but levels 200 and 300 learners were already studying Spanish for two and three years. In this sense, this investigation should be considered as a contribution to the study of second language change in time as an effect of input frequency (N. Ellis, 2002; Gass & Mackey, 2002), although a longitudinal investigation in which exposure time was estimated could be even more accurate. In addition, the fact that the acquisition of motion did not occur during the experimental sessions in the laboratory and—for the most part—it probably happened in the context of the Spanish language classroom, this study avoided the issues of ecological validity (DeKeyser, 2003; Doughty, 2003). More specifically, the Spanish learners were not induced to process the target forms in the input, tapping processes they would not normally use in ongoing acquisition in the classroom (Van Patten, 1989, p. 414).

A second methodological issue has to do with the instruments which have been employed in studies on implicit-explicit learning. DeKeyser (2003) noted that instruments have not always proved to be sensitive and reliable enough to show measurements of the knowledge underlying performance. Furthermore, there is no certainty that the instruments would not require that participants accessed explicit knowledge even when some time factors were applied (*ibid*, 2001). As to the kinds of tests employed, DeKeyser indicated that most studies on implicit and explicit learning have resorted to grammaticality judgment tests or fill-in type of tests which have been too narrow in focus. DeKeyser noticed that there has been a lack of studies that employed more unstructured tests, the kind of instrument that would allow for data

collected on freely constructed discourse. The oral narratives employed in the present study are in line with DeKeyser's suggestion. Across the three levels, the L2 learners could produce unplanned discourse simply relying on the information they recalled. Moreover, there were no constraints in time or format. Participants were completely free to construe the oral narratives in the style that was most suitable for them and with no time limitations. Incidentally, the oral narratives at the beginner and intermediate levels of proficiency disregarded the claim that a free production task (e.g., narratives, picture descriptions, role-plays, etc.) was limited to learners with established proficiency in the L2 as R. Ellis (2002) argued.

As far as recall of explicit knowledge while completing the tasks is concerned, this possibility is rather low. As mentioned earlier, the complexity and sophistication of contents of implicit learning, like the lexicalization of motion, make them unlikely targets for an easy induction of rule formation (Bornstein & Masling, 1998; Mathews et al., 1989; Robinson, 1996). Moreover, the review of several textbooks used to teach Spanish (see Appendix 2) showed that there would appear to be no simplified version of motion event descriptions as pedagogical rules that participants could have memorized and later recall. This makes it very possible that the receptive and production instruments only collected samples of motion descriptions that were implicitly acquired and with low possibilities—if any—for the inclusion of explicit knowledge. In this vein, the study demonstrated that adult learners of Spanish, namely at level 300, were able to reach native-like proficiency of an abstract and complex concept, albeit their lack of awareness of rule formation during the learning process (cf. DeKeyser, 1994, 2003).

In regards to the two methods of data analysis—language-group analysis and corpus analysis, they varied greatly in sensitivity to detect levels of acquisition. In particular, the language-group analysis proved to be less sensitive as it consistently produced monolithic patterns of oral production across the L2 Spanish levels. For example, when the L2 Spanish percentages of path (types and tokens) were compared with the equivalent proportions obtained in the English treatment, the language-group

analysis revealed no significant differences in the percentages of the beginner learners vis-à-vis the intermediate and advanced learners. Likewise, no significant differences in path (types and tokens) were observed across the three levels of L2 Spanish when compared to the L1 Spanish results. In a sense, these results corroborate the assumption of cross-sectional studies in which the process of acquisition is considered strictly linear and uniform (Meisel et al., 1981). Nevertheless, this linearity disappeared when the L2 Spanish results were compared to the L1 Spanish in the corpus analysis. In this particular comparison, there were clear differences in the proportions of path and manner types across the three L2 Spanish groups. Furthermore, the corpus analysis approach also proved to be more sensitive to reveal differences in acquisition when the databases of highest token frequencies in L2 Spanish and L1 Spanish were compared. In fact, that particular analysis yielded the most conclusive evidence that the advanced learners—but not the beginner and intermediate learners—could conceptualize motion events resembling the native-speaker pattern. In this vein, the corpus analysis contributed more substantial evidence to understand how and when, learners began to describe motion according to the conceptual framework of the target language. The disparity in the results for types and tokens between the language-group analysis and the corpus analysis suggested that, whenever possible, the data should be submitted to more than one form of analysis in order to avoid inaccurate results. Likewise, a careful distinction of types and tokens should be considered as an additional contribution of this study, enriching the scope of research in SLA (N. Ellis, 2002; Gass & Mackey, 2002).

Finally and as mentioned earlier, this study represents a first attempt to investigate the process of acquisition of motion event descriptions among native English speakers studying Spanish at different levels of proficiency. Although the results have been indicative of language acquisition and new mental imagery, they—by no means—should be taken as definitive and conclusive. By contrast, there is a need for new investigations that may corroborate the trends obtained in the present study, first employing a similar experimental design and then introducing variations

to it. Moreover, future studies may also shed some light on the following two issues which were left unresolved.

1. Regarding the lexicalization of the manner of motion in Spanish, it is necessary to investigate the dichotomy that has been observed between motion types and tokens. The study should address some of the following questions: What could prevent Spanish speakers from resorting to the vocabulary of manner types in oral production? Could the frequencies of path tokens be triggered by discourse factors? More specifically, do path token frequencies reflect language produced in a more efficient and less energy-draining way (Norrik, 2000, Tannen, 1989)?
2. As to the verb sequences underlying the highest token frequencies in Spanish, it would be interesting to determine whether native Spanish speakers always conceptualize motion around an imaginary ground that generates a three-step sequence. Could they conceptualize series of motion events producing a two-step sequence like in English? That is, conceptualize motion without an imaginary ground? Or, would it be possible to find a tripartite verb-sequence when the discourse context does not deal with motion events?

A deeper understanding of the path and manner verb-sequences in L1 Spanish should facilitate the study of similar issues in L2 Spanish. In essence, there would be empirical evidence that could help explain the effect of the manner in L2 Spanish. Moreover, it would be possible to determine the extent to which L2 Spanish learners reflected the target-verb sequence for concepts other than motion. If the empirical evidence for the latter issue were positive, that is, L2 Spanish learners could in fact acquire the target-verb-sequence for topics not related to motion; there would be more robust evidence of the process of conceptualizing notions in a second language. In turn, this would give support to the direct observation of the language production, proposed in this study, as a reliable vantage point to continue to explore the vast and complex process of thinking in a second language.

Bibliography

- Aronoff, M. & Rees-Miller, J. (Eds.). (2001). *The handbook of linguistics*. Oxford: Blackwell.
- Aske, J. (1989). Path predicates in English and Spanish: A closer look. *Proceedings of the Berkeley Linguistics Society*, 15, 1-14.
- Bardovi-Harling, K. (1987). Markedness and salience in second language acquisition. *Language Learning*, 37, 385-407.
- Beretta, A., & Davies, A. (1985). Evaluation of the Bangalore project. *ELT Journal*, 39(2), 121-127.
- Berman, R. A., & Slobin, D. I. (1994). *Relating events in narrative: A crosslinguistic developmental study*. Hillsdale, NJ: Erlbaum.
- Bialystok, E. (1979). Explicit and implicit judgments of L2 grammaticality. *Language Learning*, 29(1), 81-103.
- Bialystok, E. (1981). The role of linguistic knowledge in second language use. *Studies in Second Language Acquisition*, 4, 31-45.
- Biber, D. (1999). Investigating language use through corpus-based analyses of association patterns. In M. Barlow & S. Kemmer (Eds.), *Usage-based models of language* (pp. 287-313). Stanford, CA: Center for the Study of Language and Information.
- Biber, D., Conrad, S., & Rappen, R. (1998). *Corpus linguistics. Investigating language structure and use*. Cambridge: Cambridge University Press.
- Bornstein, R., & Masling, J. (1998). *Empirical perspectives on the psychoanalytic unconscious*. Washington, DC: APA Books.
- Bowerman, M. (1989). Learning a semantic system: what role do cognitive predispositions play? In M. L. Rice & R. L. Schiefelbusch (Eds.), *The teachability of language* (pp. 133-169). Baltimore, MD: Paul H. Brookes.
- Bowerman, M. (1996). The origin of children's spatial semantic categories: Cognitive versus linguistic determinants. In J. Gumperz & S. Levinson (Eds.), *Rethinking linguistic relativity* (pp. 145-176). Cambridge, UK: Cambridge University Press.
- Brown, P. (2001). Learning to talk about motion UP and DOWN in Tzeltal: is there a language-specific bias for verb learning? In M. Bowerman & S. C. Levinson

- (Eds.), *Language acquisition and conceptual development* (pp. 512-543). Cambridge: Cambridge University Press.
- Brown, P. (2004). Position and motion in Tzeltal frog stories. In S. Strömquist & L. Verhoeven (Eds.), *Relating events in narrative* (pp. 37-57). Mahwah, NJ: Lawrence Erlbaum.
- Bybee, J. (1995). Regular morphology and the lexicon. *Language and Cognitive Processes*, 10, 425-455.
- Bybee, J., & Hopper, P. (2001). Introduction to frequency and the emergence of linguistic structure. In J. Bybee & P. Hopper (Eds.), *Frequency and emergence of linguistic structure* (pp. 337-359). Amsterdam: John Benjamins.
- Bybee, J., & Thompson, S. (1997). Three frequency effects in syntax. *Proceedings of the Annual Meeting of the Berkeley Linguistics Society*, 23, 378-388.
- Cadierno, T., & Lund, K. (2004). Cognitive linguistics and second language acquisition: Motion events in typological framework. In B. Van Patten, J. Williams, S. Rott, & M. Overstreet (Eds.), *Form-meaning connections in second language acquisition* (pp. 139-154). Mahwah, NJ: Lawrence Erlbaum.
- Chaudron, C. (1985). Comprehension, comprehensibility, and learning in the second language classroom. *Studies in Second Language Acquisition*, 7, 216-232.
- Chaudron, C. (1988). *Second language classrooms: Research on teaching and learning*. Cambridge: Cambridge University Press.
- Choi, S., & Bowerman, M. (1991). Learning to express motion events in English and Korean: The influence of language-specific lexicalization patterns. *Cognition*, 41, 83-121.
- De Jong, N. (2005). Can second language grammar be learned through listening?: An experimental study. *Studies in Second Language Acquisition*, 27(2), 205-234.
- DeKeyser, R. (1994). How implicit can second language learning be? *AILA Review*, 11, 83-96.
- DeKeyser, R. (1995). Learning second language grammar rules: an experiment with a miniature linguistic system. *Studies in Second Language Acquisition*, 17, 379-410.

- DeKeyser, R. (2003). Implicit and explicit learning. In C. J. Doughty & M. H. Long (Eds.), *The handbook of second language acquisition* (313-348). Oxford: Blackwell Publishing.
- de León, L. (2001). Finding the richest path: language and cognition in the acquisition of verticality in Tzotzil (Mayan). In M. Bowerman & S. C. Levinson (Eds.), *Language acquisition and conceptual development* (pp. 544-565). Cambridge: Cambridge University Press.
- Doughty, C. (2003). Instructed SLA: Constraints, compensation, and enhancement. In C. Doughty & M. Long (Eds.), *The handbook of second language acquisition* (pp. 256-310). Cornwall, UK: Blackwell Publishing.
- Dulany, D., Carlson, R., & Dewey, G. (1984). A case of syntactical learning and judgment: how conscious and how abstract? *Journal of Experimental Psychology: General*, 113, 541-555.
- Edmondson, W. (1985). Discourse worlds in the classroom and in foreign language. *Studies in Second Language Acquisition*, 7, 159-167.
- Ellis, N. (1993). Rules and instances in foreign language learning: interactions of explicit and implicit knowledge. *European Journal of Cognitive Psychology*, 5, 289-318.
- Ellis, N. (1994a). Implicit and explicit language learning – an overview. In N. Ellis (Ed.), *Implicit and explicit learning of languages* (pp. 1- 31). San Diego, CA: Academic Press.
- Ellis, N. (1994b). Vocabulary acquisition: The implicit ins and outs of explicit cognitive mediation. In N. Ellis (Ed.), *Implicit and explicit learning of languages* (pp. 211- 282). San Diego, CA: Academic Press.
- Ellis, N. (2002). Frequency effects in language processing. A review with implications for theories of implicit and explicit language acquisition. *Studies in Second Language Acquisition*, 24, 143-188.
- Ellis, N. (2005). At the interface: dynamic interactions of explicit and implicit language learning. *Studies in Second Language Acquisition*, 27(2), 305-352.
- Ellis, N., & Schmidt, R. (1997). Morphology and longer distance dependencies. *Studies in Second Language Acquisition*, 19, 145-171.

- Ellis, R. (1981). The role of input in language acquisition: Some implications for second language teaching. *Applied Linguistics*, 2(1), 70-82.
- Ellis, R. (1990). *Instructed second language acquisition*. Oxford, UK: Blackwell.
- Ellis, R. (1994a). *The study of second language acquisition*. Oxford: Oxford University Press.
- Ellis, R. (1994b). A theory of instructed second language acquisition. In N. Ellis (Ed.), *Implicit and explicit learning of languages* (pp. 79-114). San Diego, CA: Academic Press.
- Ellis, R. (1997). *SLA research and language teaching*. Oxford: Oxford University Press.
- Ellis, R. (2002). Does form-focused instruction affect the acquisition of implicit knowledge? A review research. *Studies in Second Language Acquisition*, 24, 223-236.
- Ellis, R. (2004). The definition and measurement of L2 explicit knowledge. *Language Learning*, 54(2), 227-275.
- Frawley, W. (1992). *Linguistic semantics*. Hillsdale, NJ: Earlbaum.
- Garret, N. (1986). The problem with grammar: What kind the language learner use? *The Modern Language Journal*, 70, 133-148.
- Gass, S. (1983). The development of L2 intuitions. *TESOL Quarterly*, 17(2), 273-291.
- Gass, S. (1988). Integrating research areas: A framework for second language studies. *Applied Linguistics*, 9, 198-217.
- Gass, S. (1997). *Input, interaction, and the second language learner*. Mahwah, NJ: Erlbaum.
- Gass, S. M., & Mackey, A. (2002). Frequency effects and second language acquisition. A complex picture? *Studies in Second Language Acquisition*, 24, 249-260.
- Gass, S., & Selinker, L. (2001). *Second language acquisition*. Mahwah, NJ: Lawrence Erlbaum Associates.
- Gentner, D. (1982). Why nouns are learned before verbs: Linguistic relativity versus natural partitioning. In S. Kuczaj (Ed.), *Language development: Language, thought, and culture: Vol. 2* (pp. 301-334). Hillsdale, NJ: Erlbaum.

- Givón, T. (1990). Natural language learning and organized language teaching. In H. Burmeister & P. L. Rounds (Eds.), *Variability in second language acquisition proceedings of the tenth meeting of the second language research forum* (pp. 61-84).
- Glass, G. V. & Hopkins, K. (1996). *Statistical methods in education and psychology*. Boston, MA: Allyn and Bacon.
- Gonglewski, M. (1999). Linking the internet to the national standards for foreign language learning. *Foreign Language Annals*, 32(3), 348-362.
- Green, P. S., & Hecht, K. (1992). Implicit and explicit grammar: An empirical study. *Applied Linguistics*, 13(2), 168-184.
- Gregg, K. (1984). Krashen's monitor & Occam's razor. *Applied Linguistics*, 5, 79-100.
- Gremmo, M., Holec, H., & Riley, P. (1978). Taking the initiative: Some pedagogical applications of discourse analysis. *Melanges Pedagogiques*. University of Nancy: CRAPEL.
- Hamayan, E., & Tucker, R. (1980). Language input in the bilingual classroom and its relations to second language achievement. *TESOL Quarterly*, 14, 453-468.
- Hanson, C., & Hirst, W. (1988). Frequency encoding of token and type information. *Journal of Experimental Psychology: Learning, Memory, and Cognition*, 4(2), 289-297.
- Hasher, L., & Zacks, R. (1979). Automatic and effortful process in memory. *Journal of Experimental Psychology: General*, 108(3), 356-388.
- Hasher, L., & Zacks, R. (1984). Automatic processing of fundamental information. *American Psychologist*, 39(12), 1372-1385.
- Hatch, E., & Wagner-Gough, J. (1976). Explaining sequence and variation in second language acquisition. *Language Learning, Special Issue*, 4, 39-57.
- Hayes, N. A., & Broadbent, D. E. (1988). Two modes of learning for interactive tasks. *Cognition*, 28, 249-276.
- Henrichsen, L. (1984). Sandhi-variation: a filter of input for learners of ESL. *Language Learning*, 34, 103-126.

- Hsiao, A., & Reber, A.S. (1998). The role of attention in sequence learning: Theories, findings, and methodological issues. In M. S. Stadler & Frensch (Eds.), *Handbook of implicit learning* (pp. 471-494). Thousand Oaks, CA: Sage.
- Hohenstein, J. (2005). Language-related motion event similarities in English and Spanish-speaking children. *Journal of Cognition and Development*, 6(3), 403-425.
- Hohenstein, J., Eisenberg, A., & Naigles, L. (2006). Is he floating across or crossing afloat? Cross-influence of L1 and L2 in Spanish-English bilingual adults. *Bilingualism Language and Cognition*, 9(3), 249-261.
- Hohenstein, J., Naigles, L., & Eisenberg, A. (2004). Keeping verb acquisition in motion: A comparison of English and Spanish. In G. Hall, & S. Waxman (Eds.), *Weaving a lexicon* (pp. 569-602). Cambridge, MA: MIT Press.
- Hulstijn, J. (2005). Theoretical and empirical issues in the study of implicit and explicit second language learning: Introduction. *Studies in Second Language Acquisition*, 27, 129-140.
- Kita, S. (1999). Japanese enter/exit verbs without motion semantics. *Studies in Language*, 23(2), 307-330.
- Krashen, S. (1981). *Second language acquisition and second language learning*. Oxford: Pergamon.
- Krashen, S. (1982). *Principles and practices in second language acquisition*. London: Pergamon.
- Krashen, S. (1983). 'Newmark's "ignorance hypothesis" and current second language acquisition theory'. In S. Gass & L. Selinker (Eds.), *Language transfer in language learning* (pp. 135-153). Rowley, MA: Newbury House.
- Krashen, S. (1985). *The input hypothesis: Issues and implications*. New York: Longman.
- Krashen, S. (1989). We acquire vocabulary and spelling by reading: Additional evidence for the Input Hypothesis. *The Modern Language Journal*, 73, 440-464.
- Krashen, S. (1994). The input hypothesis and its rivals. In N. Ellis (Ed.), *Implicit and explicit learning of languages* (pp. 45-77). San Diego, CA: Academic Press.
- Krashen, S., & Scarcella, R. (1978). On routines and patterns in second language acquisition and performance. *Language Learning*, 28, 283-300.

- Krashen, S., & Seliger, H. (1976). The role of formal and informal linguistic environment in adult second language learning. *International Journal of Psycholinguistics*, 3, 15-21.
- Langacker, R. (1987). *Foundations of cognitive grammar*, Vol. 1: *Theoretical prerequisites*. Stanford, CA: Stanford University Press.
- Langacker, R. (1988). A usage-based model. In B. Rudzka-Ostyn (Ed.), *Topics in cognitive linguistics* (Current issues in linguistic theory 50) (pp. 127-161). Amsterdam: Benjamins.
- Langacker, R. (1990). *Concept, image, and symbol. The cognitive basis of grammar*. Berlin: Mouton de Gruyter.
- Langacker, R. (1991). *Foundations of cognitive grammar*. Stanford, CA: Stanford University Press.
- Langacker, R. (1999). A dynamic usage-based model. In M. Barlow & S. Kemmer (Eds.), *Usage-based models of language* (pp. 1-63). Stanford, CA: Center for the study of language information.
- Larsen-Freeman, D. (1976). An explanation for the morpheme acquisition order of second language learners. *Language Learning*, 26, 125-134.
- Larsen-Freeman, D., & Long, M. (1991). *An introduction to second language acquisition research*. London: Longman.
- Lightbown, P. M. (1983). Acquiring English in L2 Quebec classrooms. In S. Felix, & H. Wode (Eds.), *Language development at the crossroads* (pp. 151-175). Tübingen: Gunter Narr.
- Lightbown, P. M. (1992). Can they do it themselves? A comprehension-based ESL course for young children. In R. Courchène, J. Glidden, J. St. John, & C. Thérin (Eds.), *Comprehension-based second language teaching* (pp. 353-370). Ottawa, Canada: University of Ottawa Press.
- Lightbown, P., & Spada, N. (1999). *How languages are learned* (Rev. ed.). Oxford, England: Oxford University Press.
- Logan, R. (2000). *The sixth language: Learning a living in the internet age*. Toronto: Stoddart.

- Long, M. (1981). Input, interaction and second language acquisition. In H. Winitz (Ed.), *Native language and foreign language acquisition, Annals of the New York Academy of Sciences*, 379.
- Long, M. (1983a). Native speaker/non-native speaker conversation in the second language classroom. In M. Clarke & J. Handscombe (Eds.), *On TESOL '82: Pacific perspectives on language and teaching* (pp. 207-225). Washington D.C.: TESOL.
- Long, M. (1983b). Does second language instruction make a difference? *TESOL Quarterly*, 17(3), 359-382.
- Long, M. (1988). Instructed interlanguage development. In L. Beebe (Ed.), *Issues in second language acquisition: Multiple perspectives* (pp. 115-141). Rowley, MA: Newbury House.
- Long, M. (1996). The role of the linguistic environment in second language acquisition. In W. C. Ritchie & T.K. Bhatia (Eds.), *Handbook of second language acquisition* (pp. 413-468). San Diego, AC: Academic Press.
- Long, M., Inagaki, S., & Ortega, L. (1998). The role of implicit negative feedback in SLA: Models and recasts in Japanese and Spanish. *The Modern Language Journal*, 82, 357-371.
- Long, M., & Sato, C. (1983). Classroom foreign talk discourse: Forms and functions of teachers' questions. In H. Seliger & M. Long (Eds.), *Classroom oriented research in second language acquisition* (pp. 268-285). Rowley, MA: Newbury House.
- MacWhinney, B. (2000). *The CHILDES Project*. Mahwah, NJ: Erlbaum.
- Mathews, R., Buss, R., Stanley, W., Blanchard-Fields, F., Cho, J., & Druhan, B. (1989). The role of implicit learning from examples: a synergistic effect. *Journal of Experimental Psychology: Learning, Memory, and Cognition*, 15, 1083-100.
- Mayer, M. (1969). *Frog, where are you?* New York: Dial Press.
- McDonald, J. (1987). Sentence interpretation in bilingual speakers of English and Dutch. *Applied Psycholinguistics*, 8, 379-413.

- McDonald, J., & Heilenman, L.K. (1992). Changes in sentence processing as second language proficiency increases. In R. Harris (Ed.), *Cognitive processing in bilinguals* (pp. 325-336). North-Holland: Elsevier.
- McEmery, T., & Wilson, A. (1996). *Corpus linguistics*. Edinburgh: Edinburgh University Press.
- McLaughlin, B., Rossman, T., & McLeod, B. (1983). Second language learning: An information-processing perspective. *Language Learning*, 33, 135-158.
- McNeill, D., & Duncan, S. (1998). Growth points in thinking for speaking. Retrieved October 13, 2006, from <http://cogprints.org/664/00/McNeill&Duncan.html>
- Meisel, J., Clahsen, H., & Pienemann, M. (1981). On determining developmental stages in natural second language acquisition. *Studies in Second Language Acquisition*, 3(2), 109-135.
- Melka, F. (1982). Receptive vs. productive vocabulary: A survey. *The Interlanguage Studies Bulletin*, 6(2), 5-33.
- Melka, F. (1997). Receptive vs. productive aspects of vocabulary. In N. Schmitt & M. McCarthy (Eds.), *Vocabulary description, acquisition and pedagogy* (pp. 84-102). Cambridge, UK: Cambridge University Press.
- Miller, G. A., & Johnson-Laird, P. (1976). Verbs of motion. In *Language and perception* (pp. 526-558). Cambridge, MA: Harvard University Press.
- Mitchell, R., & Myles, F. (1998). *Second language theories*. London: Arnold.
- Myers, J. L. & Well, A. D. (1995). *Research design & statistical analysis*. Hillsdale, NJ: Lawrence Erlbaum.
- Naigles, L. R., Eisenberg, A. R., Kako, E. T., Hightner, M., & McGraw, N. (1998). Speaking of motion: Verb use in English and Spanish. *Language and Cognitive Processes*, 13(5), 521-549.
- Naigles, L.R., & Terrazas, P. (1998). Motion verb generalizations in English and Spanish: Influences of language and syntax. *Psychological Science*, 9, 363-369.
- Navarro, S., & Nicoladis, E. (2004, July). *A cognitive account on the conceptualization of motion in adult English-Spanish bilinguals*. Paper presented at the International Conference on Language, Culture and Mind, University of Portsmouth, UK.

- Navarro, S., & Nicoladis, E. (2005). Describing motion events in adult L2 Spanish narratives. In D. Eddington (Ed.), *Proceedings of the 6th conference on the acquisition of Spanish and Portuguese as first and second language* (pp. 102-107). Somerville, MA: Cascadilla Press.
- Norrik, N. (2000). *Conversational narrative. Storytelling in everyday talk*. Philadelphia, PA, USA: John Benjamins.
- Norris, J. M., & Ortega, L. (2000). Effectiveness of L2 instruction: a research synthesis and quantitative meta-analysis. *Language Learning*, 50, 417-528.
- Özçalışkan, S. (2005). Metaphor meets typology: Ways of moving metaphorically in English and Turkish. *Cognitive Linguistics*, 16(1), 207-246.
- Özçalışkan, S., & Slobin, D. I. (1999). Learning how to search for the frog: Expression of manner of motion in English, Spanish, and Turkish. In A. Greenhill, H. Littlefield, & C. Tano (Eds.), *Proceedings of the 23rd Annual Boston University Conference on Language Development: Vol. 2* (pp. 541-552). Somerville, MA: Cascadilla Press.
- Papafragon, A., Massey, C., & Gleitman, L. (2001). Motion events in language and cognition. *Proceedings of the 25th Annual Boston University Conference*, 2, 566-574.
- Paradis, M. (1994). Neurolinguistic aspects of implicit and explicit memory: Implications for bilingualism and SLA. In N. Ellis (Ed.), *Implicit and explicit learning of languages* (pp. 393-419). San Diego, CA: Academic Press.
- Parker, K., & Chaudron, C. (1987). The effects of linguistic simplification and elaborative modifications on L2 comprehension. *University of Hawaii Working Papers in ESL*, 6, 107-133.
- Pawley, A., & Syder, F. H. (1983). Two puzzles for linguistic theory: Native like selection and native like fluency. In J. C. Richards & R. W. Schmidt (Eds.), *Language and communication* (pp. 191-225). London: Longman.
- Perdue, C. (1993). *Adult language acquisition: Crosslinguistic perspectives* (Ed.) (Vol. 2, pp. 245). Cambridge: Cambridge University Press.
- Pienemann, M. (1989). Is language teachable? Psycholinguistic experiments and hypotheses. *Applied Linguistics*, 10(1), 52-79.

- Pica, T. (1994). Research on negotiation: What does it reveal about second-language learning conditions, processes, and outcomes? *Language Learning*, 44, 493-527.
- Posner, M., & Klein, R. (1973). On the function of consciousness. In S. Kornblum (Ed.), *Attention and performance IV* (pp. 21-35). London: Academic Press.
- Prabhu, N. S. (1982). *The communicational teaching project, South India*. Madras: The British Council (mimeo).
- Ramsey, N., Jansma, J., Jager, G., Van Raalten, T., & Kahn, R. (2004). Neurophysiological factors in human information processing capacity. *Brain*, 127, 517-525.
- Reber, A. S. (1967). Implicit learning of artificial grammars. *Journal of Verbal Learning and Verbal Behaviour*, 6, 855-863.
- Reber, A. S. (1976). Implicit learning of synthetic languages: the role of instructional set. *Journal of Experimental Psychology: Human Learning and Memory*, 2, 88-94.
- Reber, A. S. (1989). Implicit learning and tacit knowledge. *Journal of Experimental Psychology: General*, 118, 219-235.
- Reber, A. S., & Allen, R. (2000). Individual differences in implicit learning: Implications for the evolution of consciousness. In R. G. Kunzendorf & B. Wallace (Eds.), *Individual differences in conscious experience: Advances in consciousness research* (Vol. 20, pp. 227-247). Amsterdam: John Benjamins.
- Reber, A. S., Kassir, S., Lewis, S., & Cantor, G. (1980). On the relationship between implicit and explicit modes in the learning of a complex rule structure. *Journal of Experimental Psychology: Human Learning and Memory*, 6, 492-502.
- Rice, S. (1999). Patterns of acquisition in the emerging mental lexicon: The case of *to* and *for* in English. *Brain and Language*, 68, 268-276.
- Robinson, P. (1996). Learning simple and complex second language rules under implicit, incidental, rule-search, and instructed conditions. *Studies in Second Language Acquisition*, 18, 27-67.
- Rosa, E., & O'Neill, M.D. (1999). Explicitness, intake, and the issue of awareness: another piece to the puzzle. *Studies in Second Language Acquisition*, 21, 511-556.

- Sato, C. (1986). Conversation and interlanguage development: Rethinking the connection. In R. Day (Ed.), *Talking to learn: Conversation in second language acquisition* (pp. 134-151). Rowley, MA: Newbury House.
- Schmidt, R. (1990). The role of consciousness in second language learning. *Applied Linguistics*, 11, 129-158.
- Schmidt, R. (1993). Awareness and second language acquisition. *Annual Review of Applied Linguistics*, 13, 206-226.
- Schmidt, R. (1994a). Deconstructing consciousness in search of useful definitions for applied linguistics. *AILA Review*, 11, 11-26.
- Schmidt, R. (1994b). Implicit learning and the cognitive unconscious: Of artificial grammars and SLA. In N. C. Ellis (Ed.), *Implicit and explicit learning of languages* (pp. 165-209). San Diego, CA: Academic Press.
- Schmidt, R. (2001). Attention. In R. Robinson (Ed.), *Cognition and second language instruction* (pp. 3-32). Cambridge: Cambridge University Press.
- Schmidt, R., & Frota, S. (1986). Developing basic conversation ability in a second language: a case study of an adult learner of Portuguese. In R. Day (Ed.), *Talking to learn: Conversation in second language acquisition* (pp. 237-326). Rowley, MA: Newbury House.
- Scott, V. M. (1990). Explicit and implicit grammar teaching strategies: new empirical data. *French Review*, 63, 779-789.
- Sebastian, E., & Slobin, D. (1994). The development of linguistics forms: Spanish. In R. Berman & D. Slobin (Eds.), *Relating events in narrative: A crosslinguistic developmental study* (pp. 239-284). Hillsdale, NJ: Erlbaum.
- Seliger, H. (1983). The language learner as linguist: Of metaphors and realities. *Applied Linguistics*, 4, 179-191.
- Sharwood Smith, M. (1994). The unruly world of language. In N. C. Ellis (Ed.), *Implicit and explicit learning of languages* (pp. 33-43). San Diego, CA: Academic Press.
- Shiffrin, R., & Schneider, W. (1977). Controlled and automatic human information processing: II. Perceptual learning, automatic attending and a general theory. *Psychological Review*, 84, 127-190.

- Simonson, M., Smaldino, S., Albright, M., & Zvacek, S. (2000). *Teaching and learning at a distance: Foundations of distance education*. Upper Saddle River, NJ: Merrill/Prentice Hall.
- Slobin, D. (1985). Crosslinguistic evidence for the language-making capacity. In D. Slobin (Ed.), *The crosslinguistic study of language acquisition. Vol. 2: Theoretical issues* (1157-1249). Hillsdale, NJ: Erlbaum.
- Slobin, D. (1987). Thinking for speaking. *Proceedings of the Thirteenth Annual Meeting of the Berkeley Linguistics Society, USA*, 435-445.
- Slobin, D. (1991). Learning to think for speaking: Native language, cognition, and rhetorical style. *Pragmatics*, 1, 7-26.
- Slobin, D. I. (1996). Two ways to travel: Verbs of motion in English and Spanish. In M. Shibatani & S. A. Thompson (Eds.), *Grammatical constructions: Their form and meaning* (pp. 195-220). Oxford: Clarendon Press.
- Slobin, D. I. (1997). Mind, code, and text. In J. Bybee, J. Haiman, & S. A. Thompson (Eds.), *Essays on language function and language type: Dedicated to T. Givón* (pp. 437-467). Amsterdam: John Benjamins.
- Slobin, D. (2000). Verbalized events: A dynamic approach to linguistic relativity and determinism. In S. Niemeier & R. Dirven (Eds.), *Evidence for linguistic relativity* (pp. 107-138). Amsterdam: John Benjamins.
- Slobin, D. (2003). Language and thought online: Cognitive consequences of linguistic relativity. In D. Gentner & S. Goldin-Meadow (Eds.), *Language in mind: Advances in the study of language and thought* (pp. 157-192). Cambridge, MA: MIT Press.
- Slobin, D. I. (2004). The many ways to search for a frog: Linguistic Typology and the expression of motion events. In S. Strömquist & L. Verhoeven (Eds.), *Relating events in narrative: Typological and contextual perspectives* (pp. 219-257). Mahwah, NJ: Lawrence Erlbaum.
- Slobin, D.I., & Bocaz, A. (1988). Learning to talk about movement through time and space: The development of narrative abilities in Spanish and English. *Lenguas Modernas*, 15, 5-24.

- Slobin, D.I., & Hoiting, N. (1994). Reference to movement in spoken and signed language: Typological considerations. *Proceedings of the Berkeley Linguistics Society*, 20, 487-505.
- Snow, C., & Hoefnagle-Höhle, M. (1982). The critical age for second language: Evidence from second language learning. *Child Development*, 49, 1114-1128.
- Sorace, A. (1986). The development of linguistic intuitions in adult second language acquisition. A research project. *Ressegna Italiana di Linguistica Applicata*, 3, 63-76.
- Stern, H. (1983). *Fundamental concepts of language teaching*. Oxford: Oxford University Press.
- Swain, M. (1995). Three functions of output in second language learning. In G. Cook & B. Seidlhofer (Eds.), *Principle and practice in applied linguistics* (pp. 125-144). Oxford: Oxford University Press.
- Swain, M. (1998). The output hypothesis, focus on form, and second language learning. In V. Berry, B. Adamson, & W. Littlewood (Eds.), *Applied linguistics: Insights into language in education* (pp. 1-21). Hong Kong: English Centre, University of Hong Kong.
- Swan, M. (1997). The influence of the mother tongue on second language vocabulary and use. In N. Schmitt & M. McCarthy (Eds.), *Vocabulary: Description, acquisition, and pedagogy* (pp. 156-180). Cambridge, UK: Cambridge University Press.
- Talmy, L. (1985). Lexicalization patterns: Semantic structure in lexical forms. In T. Shopen (Ed.), *Language typology and lexical description: Vol. 3. Grammatical categories and the lexicon* (pp. 36-149). Cambridge: Cambridge University Press.
- Talmy, L. (1988). The relation of grammar to cognition. In B. Rudzka-Ostyn (Ed.), *Topics in cognitive linguistics* (pp. 165-205). Amsterdam: John Benjamins.
- Talmy, L. (1991). Path to realization: A typology of event conflation. *Proceedings of the Berkeley Linguistics Society*, 17, 480-519.
- Talmy, L. (2000). *Toward a cognitive semantics: Vol. II: Typology and process in concept structuring*. Cambridge, MA: MIT Press.
- Tannen, D. (1989). *Talking voices*. Cambridge: Cambridge University Press.

- Tenny, C. (1995). How motion verbs are special: The interaction of semantic and pragmatic information in aspectual verb meanings. *Pragmatic and Cognition*, 3(1), 31-73.
- Terrell, T., Gomez, E., & Mariscal, J. (1980). Can acquisition take place in the classroom? *Research in second language acquisition: Selected Papers of the Los Angeles Second Language Acquisition Research Forum*, 155-161.
- Van Patten, B. (1989). Can learners attend to form and content while processing input? *Hispania*, 72, 409-417.
- Van Patten, B. (1990). Attending to form and content in the input. *Studies in Second Language Acquisition*, 12, 287-301.
- Van Patten, B. (1996). Processing instruction. In *Input processing and grammar instruction: Theory and research* (pp. 55-86). Norwood, NJ: Ablex.
- Vendler, Z. (1967). Verbs and times. In Z. Vendler, *Linguistics in philosophy* (pp. 97-121). Ithaca, NY: Cornell University Press.
- Waring, R. (1999). The Notions of Receptive and Productive Vocabulary. *Tasks for assessing second language receptive and productive vocabulary* (chapter 1). Retrieved October 29, 2006, from <http://www1.harenet.ne.jp/~waring/papers/phd/abstract.html>
- Warschauer, M. (1995). *E-mail for English teachers: Bringing the internet and computer learning networks into the language classroom*. Alexandria, VA: Teachers of English to Speakers of Other Languages.
- Williams, J. N. (1999). Memory, attention, and inductive learning. *Studies in Second Language Acquisition*, 21, 1-48.
- Williams, J. N. (2004). Implicit learning of form-meaning connections. In B. VanPatten, J. Williams, S. Rott, & M. Overstreet (Eds.), *Form-meaning connections in second language acquisition* (pp. 203-218). Mahwah, NJ: Erlbaum.
- Williams, J. N. (2005). Learning without awareness. *Studies in Second Language Acquisition*, 27(2), 269-304.

- Williams, J., & Evans, J. (1998). What kind of focus and on which forms? In C. Doughty & J. Williams (Eds.), *Focus on form in classroom second language acquisition* (pp. 139-155). Cambridge: Cambridge University Press.
- Wong-Fillmore, L. (1985). When does teacher work as input?. In S. M. Gass & C. G. Madden (Eds.), *Input in second language acquisition* (pp. 17-50). Rowley, MA: Newbury House Publishers.
- Zlatev, J., & Yangklang, P. (2004). A third way to travel. The place of Thai in motion typology. In S. Strömquist & L. Verhoeven (Eds.), *Relating events in narrative* (pp. 159-190). Mahwah, NJ: Lawrence Erlbaum.

Appendix 1: Objectives and Contents of the Spanish Program at the University of Alberta

2003-2004 Academic Year

Spanish 111 is an introductory course intended for students with no previous knowledge of the language.

NOTE: The Department will withhold credit from students completing courses for which prior background is deemed to make them ineligible, and/or are heritage-speakers and/or for whom it is their first language. Should such a student register in the course, credit will be withheld.

Students should be aware that this is a rigorous course aimed at those students who wish to attain a working knowledge of Spanish, and the objective conditions will be created whereby all students can have a successful learning experience. At the end of the course the successful student:

- will practice and develop oral (speaking and listening) and literacy (reading and writing) skills
- will be able to use Spanish to communicate in a wide range of contexts
- will be able to interact with Spanish texts on a variety of subjects
- will attain a heightened awareness of and sensitivity to the Spanish language
- will learn about some social, historical, and political aspects of Spanish speaking world

Spanish 112 is intended for students continuing from Spanish 111 or who have been granted departmental permission to take this course. Please speak to your instructor before contacting the course coordinators if you have any concerns about your level.

NOTE: The Department will withhold credit from students completing courses for which prior background is deemed to make them ineligible, and/or are heritage-

speakers and/or for whom it is their first language. Should such a student register in the course, credit will be withheld.

Students should be aware that this is a rigorous course aimed at those students who wish to attain a working knowledge of Spanish, and the objective conditions will be created whereby all students can have a successful learning experience. At the end of the course the successful student:

- will practice and develop oral (speaking and listening) and literacy (reading and writing) skills
- will be able to use Spanish to communicate in a wide range of contexts
- will be able to interact with Spanish texts on a variety of subjects
- will attain a heightened awareness of and sensitivity to the Spanish language
- will learn about some social, historical, and political aspects of Spanish speaking world

SPAN 211 is an intermediate course designed to build on basic knowledge and skills. We will review in depth some of the more difficult grammatical structures and further develop skills in reading, writing, listening and speaking Spanish. We will also attain a deeper awareness of some of the social and cultural aspects of the Spanish-speaking world. By the end of the course, you should be able to communicate more effectively in both oral and written Spanish.

Prerequisite: SPAN 30, SPAN 112 or equivalent, or permission of the department. The Department will withhold credit from students completing courses for which prior background is deemed to make them ineligible. Should such a student register in the course, credit will be withheld. For questions regarding eligibility, please contact the undergraduate advisor, Dr. Victoria Ruétalo, victoria.ruetalo@ualberta.ca, 492-6766.

SPAN 212 (formerly SPAN 200) is the continuation of SPAN 211. This intermediate course designed to build basic knowledge and skills in the Spanish

language. We will review in depth some of the more difficult grammatical structures and further develop skills in reading, writing, listening and speaking Spanish. We will also attain a deeper awareness of some of the social and cultural aspects of the Spanish-speaking world. By the end of the course, you should be able to communicate more effectively in both oral and written Spanish.

NOTE: The Department will withhold credit from students completing courses for which prior background is deemed to make them ineligible. Should such a student register in the course, credit will be withheld. For questions regarding eligibility, please contact the course coordinator.

Spanish 300 is an intermediate to advanced level course for students with a working knowledge of the language. Pre-requisite: Spanish 211 and 212 or equivalent. The Department will withhold credit from students completing courses for which prior background is deemed to make them ineligible. Should such a student register in the course, credit will be withheld. For questions regarding eligibility, please contact the undergraduate advisor, Dr. Victoria Ruétalo, victoria.ruetalo@ualberta.ca, 492-6766.

- Students will gain greater facility in the use of spoken and written Spanish.
- Students will be able to use Spanish to express themselves in a variety of contexts.
- Students will be able to interact with a wide variety of Spanish texts, including literary texts, newspapers, and popular songs.
- Students will attain a heightened awareness of and sensitivity to the Spanish language in general.
- Students will attain a deeper understanding of some of the significant social, cultural, historical, and political aspects of the Spanish speaking world.
- Students will be prepared to participate in higher level academic courses in Spanish, relating to literary, linguistic, and cultural topics.

Appendix 2:

List of Spanish textbooks consulted

- Borrás, G., Hendrickson, J., Henighan, S., & Velásquez, A. (2006). *Intercambios*. Canada: Thomson Nelson.
- Castells, M., Guzmán, E., Lapuerta, P., & García, C. (2006). *Mosaicos*. Upper Saddle River, NJ: Pearson Prentice Hall.
- Hershberger, R., Fast, M., López-Cox, G., Navey-Davis, S., & Nalbone, L. (2001). *Plazas*. Boston, MA: Heinle & Heinle.
- Knorre, M., Dorwick, T., Pérez-Gironés, A. M., Glass, W., & Villarreal, H. (2001). *Puntos de partida* (6th ed.). Boston, MA: McGraw Hill.
- Terrell, T., Andrade, M., Egasse, J., & Muñoz, E. (2006). *Dos mundos* (6th ed.). Burr Ridge, IL: McGraw Hill.
- Martínez-Lage, A., Gutiérrez, J. R., Rosser, H. L. (2003). *¡Tú dirás!* (3rd ed.). Boston, MA: Heinle & Heinle.
- McVey Gill, M., Wegmann, B., & Méndez-Faith, T. (2003). *En contacto* (7th ed.). Boston, MA: Thomson Heinle.
- Samaniego, F., Blommers, T., Lagunas-Carvacho, M., Sardán, V., & Rodríguez, F. (1998). *¡Dímelo tú!* (3rd ed.). Orlando, FL: Harcourt Brace College Publishers.
- Zayas-Bazán, E., Bacon, S., Aitken, G., & Saroli, A. (2005). *¡Arriba!*. Toronto, Canada: Pearson Prentice Hall.
- Zayas-Bazán, E., Bacon, S., & García, D. (2002). *Conexiones* (2nd ed.). Upper Saddle River, NJ: Prentice Hall.

Appendix 3: Consent Form and Personal Information Questionnaire in Spanish

Invierno, 2003

Estimado participante,

Le invito a formar parte de un estudio de adquisición de segunda lengua. Lea esta información cuidadosamente y, si está de acuerdo, por favor firme en la siguiente página. Puede formular cualquier consulta que se relacione con el estudio.

El objetivo de este proyecto de investigación es determinar cómo y cuándo hablantes de inglés que estudian español como segunda lengua describen acciones de movimiento en la segunda lengua. Específicamente, deseo verificar en estudiantes de segunda lengua la propuesta tipológica de Talmy (1985; 1991; 2000), que señala la diferencia que existe en como los hablantes de inglés y español se refieren a un objeto(s) en movimiento. Para recolectar los datos, le mostraré dos historias breves de la Pantera Rosa y luego le solicitaré que cuente las historias en español y en inglés respectivamente. Esta actividad será video filmada y estará dirigida por un hablante autóctono de cada idioma. Posteriormente, le mostraré un segundo video que contiene diversas imágenes en movimiento y le pediré que seleccione a partir de un instrumento escrito con oraciones que describen cada imagen, aquella que le resulte más natural.

Dado que su participación es totalmente voluntaria, usted tiene el derecho a retirarse de este estudio en el momento que lo desee y sus datos serán excluidos. Si acepta permanecer en el estudio, su identidad estará totalmente resguardada ya que su nombre o cualquier otra información personal no serán publicados o diseminados de ninguna forma. También tiene el derecho de solicitar, en cualquier momento, la remoción de los datos que se obtengan de usted. Finalmente, y en el caso de que tenga cualquier reparo con el estudio, puede contactar la oficina del Director del Departamento de Lingüística de la Universidad de Alberta.

Es posible que para realizar estudios futuros sobre adquisición de lenguaje o para mostrar ejemplos de los datos obtenidos en presentaciones de conferencias, necesite utilizar las imágenes de video que realice de usted. En el caso de que me autorice a usar dichas imágenes para los propósitos descritos, sírvase escribir sus iniciales en este espacio _____, fecha _____. En caso de que no escriba sus iniciales, no utilizaré las video grabaciones.

Desde ya agradezco su amable consideración a esta solicitud y quedo a su entera disposición ante cualquier consulta.

Atentamente,

Samuel Navarro

samueln@ualberta.ca

(780) 492 4189

Código : _____

Nombre : _____

Fecha : _____

Acepto voluntariamente participar en este proyecto de investigación de la manera como me ha sido presentado. También he sido informado de mis derechos como participante y me ha sido garantizado que toda información personal o de lenguaje serán usados solamente con fines de investigación sobre la adquisición de lenguaje.

Firma: _____ Fecha: _____

Nombre (en letra imprenta): _____

CUESTIONARIO DE INFORMACIÓN PERSONAL

La siguiente información es para propósitos estadísticos. Por favor, complete los espacios o marque con un círculo las alternativas correspondientes.

Código: _____ Fecha: _____

Sexo: M F Edad: _____

Nivel de educación completado: _____

1. ¿Es el castellano su lengua materna?

SI NO

2. ¿Qué otros idioma(s) habla? ¿Con qué frecuencia?

3. ¿Ha estudiado inglés anteriormente?

SI NO

4. ¿Dónde ha estudiado inglés? ¿Por cuánto tiempo?

5. ¿Ha visitado un país de habla inglesa anteriormente?

SI NO

6. ¿Qué país(es) de habla inglesa ha visitado? ¿Por cuánto tiempo?

7. ¿Habla inglés frecuentemente? ¿Dónde? ¿Con qué frecuencia?

Appendix 4: Consent Form and Personal Information Questionnaire in English

Winter, 2004

Dear participant,

I would like to invite you to participate in a study on second language acquisition. Please read this information carefully and if you agree sign on the next page. You may ask any question related to this study.

The aim of this study is to determine how and when native speakers of English who are studying Spanish as a second language incorporate the structures for the description of motion events. More specifically, I would like to verify in second language learners, Talmy's (1985; 1991; 2000) typological proposal which indicates that English and Spanish speakers differ in how they describe an object(s) in movement. In order to collect the data, I will show you two short stories of the Pink Panther and I will ask you to tell the stories in English and in Spanish to a native speaker of each language. This activity will be video taped. In a second task, I will show you a video that contains twenty short dynamic motion scenes (e.g., aircraft taking off, fish swimming, women walking upstairs, etc.). In addition, I will give you a test with sentences about the video images. For each image, two brief descriptions of the scene (sentence a & sentence b are provided). You will have to select the sentence you consider is the most natural way for describing the event.

Since your participation is completely voluntary, you have the right to withdraw from the study at any time and your data will be removed. If you accept to participate, your identity will be completely anonymous because your name or any personal information will not be published or disseminated in any way. You also have the right to request, at any time, to have the data obtained from you removed from the study. Finally, and in case you have any concern with the study, you may contact the Office of the Chair, Department of Linguistics, University of Alberta.

It is possible that in future studies on language acquisition or to show examples of the data in conference presentations, I will need to use the video images I take from you. In case you allow me to use these images for the purposes described, please write your initials in the space _____, date _____. If you do not write your initials, I will not use the video images.

I thank you for your consideration of this request. Do not hesitate to contact me if you have any questions.

Yours sincerely,

Samuel Navarro
samueln@ualberta.ca
(780) 492 4189

Code : _____

Name : _____

Date : _____

I agree to volunteer my participation in this research project as it has been described to me. I have also been informed of my rights as a participant and I have been guaranteed that all personal and language information will only be used for research purposes on language acquisition.

Signature: _____ Date: _____

Name (in print): _____

PERSONAL INFORMATION QUESTIONNAIRE

The following information is for statistical purposes. Please, fill in the blanks or circle the corresponding alternative.

Code: _____ Date: _____

Sex: M F Age: _____

Highest level of education completed: _____

1. Is English your first language?

YES NO

2. What other languages do you speak? How often?

3. Have you studied Spanish before?

YES NO

4. Where have you studied Spanish before? How long?

5. Have you ever visited a Spanish-speaking country?

YES NO

6. What Spanish-speaking countries have you visited? How long?

7. Do you speak Spanish frequently? Where? How often?

Appendix 5:

Written instrument for the receptive task in Spanish

Instrucciones

Este instrumento contiene veinte oraciones divididas en alternativas a y b para describir veinte imágenes de video que muestran objetos en movimiento. Las oraciones e imágenes están organizadas en el mismo orden. Ambas están correctas y son formas válidas para describir las imágenes. Encierre en un círculo la oración que para usted describe en forma más natural la imagen respectiva. En caso de tener problemas con el vocabulario, por favor contacte al investigador.

1a. Las mujeres suben una escalera.

1b. Las mujeres caminan hacia arriba en una escalera.

2a. El avión chocó con el vidrio.

2b. El avión impactó el vidrio.

3a. Pusieron el chupete en la mamadera.

3b. Atornillaron el chupete en la mamadera.

4a. El avión entró a la habitación volando.

4b. El avión voló al interior de la habitación.

5a. El hombre sacó un poco de azúcar.

5b. El hombre agarró un poco de azúcar.

6a. El hombre maneja la motoneta.

6b. El hombre va en la motoneta.

7a. Los hombres saltaron por el hueco.

7b. Los hombres pasaron por el hueco.

- 8a. Los pescados están nadando.
8b. Los pescados pasan nadando.
- 9a. Alguien pescó el boleto.
9b. Alguien agarró el boleto.
- 10a. El avión está partiendo.
10b. El avión está despegando.
- 11a. El hombre con el canasto corrió para escaparse.
11b. El hombre con el canasto se escapó corriendo.
- 12a. El joven se lanzó desde la torre.
12b. El joven se cayó desde la torre.
- 13a. El avioncito está volando alrededor del edificio.
13b. El avioncito está pasando alrededor del edificio.
- 14a. El hombre de gris salió de la habitación.
14b. El hombre de gris caminó fuera de la habitación.
- 15a. El hombre con la tabla amarilla se fue alejándose.
15b. El hombre de la tabla amarilla caminó alejándose.
- 16a. Los niños se van lejos.
16b. Los niños corren lejos.
- 17a. Los niños se lanzan la pelota.
17b. Los niños tiran la pelota
- 18a. El bus arribó al paradero.

18b. El bus paró en el paradero.

19a. El hombre se bajó de la bicicleta y cruzó hacia al otro lado de la calle.

19b. El hombre se bajó de la bicicleta y caminó hacia al otro lado de la calle.

20a. El mago clavó las espadas dentro de la caja.

20b. El mago metió las espadas dentro de la caja.

Appendix 6:

Written instrument for the receptive task in English

Instructions

You will be shown twenty dynamic motion scenes. Each scene is presented in the same order in which the sentences are arranged. After watching each scene, read the sentences (a & b) that describe it. Both alternatives are possible descriptions of each scene. Circle the sentence that is your first and most natural response. In case you need help with vocabulary, do not hesitate to ask the experimenter.

1a. Those two women are walking up the steps.

1b. Those two women are going up the steps.

2a. The plane crashed into the glass.

2b. The plane hit the glass.

3a. The nipple was put on the bottle.

3b. The nipple was screwed on the bottle.

4a. The plane came into the room.

4b. The plane flew into the room.

5a. A man took a pinch of sugar out of the jar.

5b. A man grabbed a pinch of sugar from the jar.

6a. The man rode his scooter to work.

6b. The man went to work on his scooter.

7a. The men are jumping through the hole.

7b. The men are passing through the hole.

8a. Those fish are swimming away.

8b. Those fish are going away.

9a. The ticket was taken from the machine.

9b. The ticket was picked from the machine.

10a. The jet plane is leaving.

10b. The jet plane is taking off.

11a. The man in the basket ran away.

11b. The man in the basket escaped.

12a. The young man jumped from the tower.

12b. The young man fell from the tower.

13a. The little plane is buzzing around the building.

13b. The little plane is circling the building.

14a. The man in the grey suit went out of the room.

14b. The man in the grey suit walked out of the room.

15a. The man carrying the yellow board left.

15b. The man carrying the yellow board walked away.

16a. The children are running away.

16b. The children are going away.

17a. The children are throwing the ball

17b. The children are hitting the ball.

18a. The bus arrived at the bus stop.

18b. The bus came to the bus stop.

19a. The man got off his bike and crossed the street.

19b. The man got off his bike and walked across the street.

20a. The magician slid the swords into the box.

20b. The magician put the swords into the box.

Appendix 7 (1):

Instrument for the Reanalysis of the Spanish Verbs

¿Cómo se mueven los objetos en castellano?

M: descriptivo

P: no descriptivo

Pedro corrió hasta la esquina

El pájaro voló en círculos

La pelota rodó lentamente

El globo flotó hacia la cueva

Pedro entró corriendo a la casa

El pájaro subió hasta el árbol

La pelota cayó en el hoyo tres

El globo salió flotando desde la cueva

		M	P			M	P
1	abrir			14	coger		
2	agarrar			15	correr		
3	alejarse			16	cortar		
4	apretar			17	cubrir		
5	arrancar (algo)			18	despegar		
6	aterrizar			19	devolverse		
7	atravesar			20	echar		
8	bajar			21	entrar		
9	botar			22	escapar		
10	caer			23	estacionar		
11	caminar			24	flotar		
12	cargar			25	golpear		
13	cerrar			26	hundirse		
				27	ir		

Appendix 7 (2): Instrument for the Reanalysis of the Spanish Verbs

¿Cómo se mueven los objetos en castellano?

IB

M: descriptivo

P: no descriptivo

Pedro corrió hasta la esquina

El pájaro voló en círculos

La pelota rodó lentamente

La globo flotó hacia la cueva

Pedro entró corriendo a la casa

El pájaro subió hasta el árbol

La pelota cayó en el hoyo tres

El globo salió flotando desde la cueva

		M	P
1	levantarse		
2	llegar		
3	llevar		
4	manejar		
5	meter		
6	mover		
7	nadar		
8	parar		
9	pasar		
10	pegar		
11	perseguir		
12	poner		
13	quebrar		
14	quitar		

		M	P
15	remar		
16	romper		
17	retornar		
18	sacar		
19	salir		
20	subir		
21	tapar		
22	tirar (algo)		
23	tocar		
24	tomar		
25	venir		
26	volar		
27	volver		

Appendix 8 (1):

Instrument for the Reanalysis of the English Verbs

How do objects move in English?

M : descriptive	P : non descriptive
Peter <u>ran</u> to the corner	Peter <u>entered</u> the house running
The bird <u>flew</u> in circles	The bird <u>went</u> up the tree
The ball <u>rolled</u> slowly	The ball <u>fell</u> into the third hole
The balloon <u>floated</u> into the cave	The balloon <u>came out</u> the cave floating

	M	P		M	P
1			22		
2			23		
3			24		
4			25		
5			26		
6			27		
7			28		
8			29		
9			30		
10			31		
11			32		
12			33		
13			34		
14			35		
15			36		
16			37		
17			38		
18			39		
19			40		
20			41		
21			42		

Participant N. _____

Age: _____

Gender: M F

Activity: _____

Appendix 8 (2):

Instrument for the Reanalysis of the English Verbs

How do objects move in English?

M : descriptive	P : non descriptive
Peter <u>ran</u> to the corner	Peter <u>entered</u> the house running
The bird <u>flew</u> in circles	The bird <u>went</u> up the tree
The ball <u>rolled</u> slowly	The ball <u>fell</u> into the third hole
The balloon <u>floated</u> into the cave	The balloon <u>came out</u> the cave floating

		M	P			M	P
43	open			64	slam		
44	paddle			65	smash		
45	pat			66	stomp		
46	pick up			67	stop		
47	plug (up)			68	stuff back		
48	plunk			69	sweep		
49	poke			70	swim		
50	pop			71	swirl		
51	press			72	swoop		
52	pull			73	take off		
53	put			74	take (sth) out		
54	return			75	tap (off)		
55	reverse			76	throw		
56	ride			77	tie		
57	rip (out)			78	toss		
58	roll			79	turn		
59	run			80	walk		
60	rush			81	wander		
61	scoop (down)			82	zip		
62	shoot off			83	zoom		
63	shut						

Participant N. _____

Age: _____

Gender: M F

Activity: _____

Appendix 9:

Spanish Coding Guide

M	P
abrir	alejarse
agarrar	arrancar (algo)
apretar	atravesar
aterrizar	bajar
botar	caer
caminar	cargar
cerrar	cubrir
coger*	devolverse
correr	echar
cortar	entrar
despegar	escapar
flotar	estacionar
hundirse	golpear
levantarse	ir
manejar	llegar
nadar	llevar
parar	meter
pegar	mover
perseguir	pasar
quebrar	poner
regresar	retornar
quitar	sacar
remar	salir
romper	subir
tapar	tomar
tirar (algo)	venir
tocar	volver
volar	

Appendix 10:

English Coding Guide

M	M	P
bang	nail	arrive
break	paddle	board
carry	pat	bring
chase	plunk	close
chuck	poke	comes
climb	pop	eject
clip	press	escape
crawl	pull	fall
cut	rip out	fly
destroy	roll	get
dive	run	go
drag	rush	head
drift	scoop down	move
drill	shoot off	open
drop	slam	pick up
float	smash	plug up
glide	stomp	put
grab	stuff back*	return
hit	sweep	reverse
hop	swim	ride
jump	swirl	shut
kick	swoop	stop
knock	throw	stuff back*
land	toss	take off
leave	walk	take out
loop	wander	tap off
make a hole	zip	tie
march	zoom	turn
	* equally rated as manner and path	

Appendix 11: Receptive task two-way ANOVA table

Analysis of Variance with Language (L1 English and L2 Spanish) as a repeated measure

Source	df	F	η	p
Between subjects				
Proficiency (P)	2	2.450	.079	.010
S within-group Error	57	(.012)		
Within subjects				
Language (L)	1	70.960*	.555	.001
L x P	2	4.607* *	.139	.02
L x P within-group error	57	(.009)		

Note. Values in parentheses represent mean square errors. S = subjects.

* $p < .001$.

** $p < .05$.

Post Hoc Tests

P

Multiple comparisons

Source	Mean difference	Std. Error	p	95% Confidence interval
Tukey HSD				
3 1	.0512	.02415	.094	-.0069 .1094
2	.0387	.02415	.252	-.0194 .0969

Appendix 12: Receptive task one-way ANOVA table

Analysis of Variance for the comparison of path verbs in L2 and L1 Spanish

Source	df	MS	SS	F	p
Between subjects					
Proficiency (P)	3	.049	.146	4.769*	.004
Within subjects					
	76	.010	.776		

Note: * $p < .05$.

Post Hoc Tests

P

Multiple comparisons

Source	Mean difference	Std. Error	p	95% Confidence interval
Tukey HSD				
3 1	.10000*	.03196	.013	.0161 .1839
2	.10000*	.03196	.013	.0161 .1839
4	.03750	.03196	.645	-.0464 .1214

Note: * $p < .05$.

Appendix 13:

LEVEL 100 LANGUAGE-GROUP RESULTS L2 SPANISH TYPES

Participants		PATH						Participants		MANNER					TOTAL
	INTR		TRAN						INTR		TRAN				
A	4	67%	2	33%	6	0.55		A	4	80%	1	20%	5	0.45	11
B	4	67%	2	33%	6	1.00		B	0	0%	0	0%	0	0.00	6
C	3	100%	0	0%	3	0.60		C	1	50%	1	50%	2	0.40	5
D	2	67%	1	33%	3	0.75		D	1	100%	0	0%	1	0.25	4
E	1	25%	3	75%	4	0.50		E	2	50%	2	50%	4	0.50	8
F	3	60%	2	40%	5	0.71		F	1	50%	1	50%	2	0.29	7
G	5	83%	1	17%	6	0.75		G	1	50%	1	50%	2	0.25	8
H	4	100%	0	0%	4	0.50		H	3	75%	1	25%	4	0.50	8
I	3	100%	0	0%	3	0.75		I	0	0%	1	100%	1	0.25	4
J	1	100%	0	0%	1	0.33		J	2	100%	0	0%	2	0.67	3
K	5	83%	1	17%	6	0.55		K	4	80%	1	20%	5	0.45	11
L	3	75%	1	25%	4	0.80		L	0	0%	1	100%	1	0.20	5
M	3	75%	1	25%	4	0.67		M	2	100%	0	0%	2	0.33	6
N	2	67%	1	33%	3	0.60		N	2	100%	0	0%	2	0.40	5
O	2	100%	0	0%	2	0.25		O	5	83%	1	17%	6	0.75	8
P	1	50%	1	50%	2	1.00		P	0	#DIV/0!	0	#DIV/0!	0	0.00	2
Q	1	100%	0	0%	1	0.33		Q	2	100%	0	0%	2	0.67	3
R	2	100%	0	0%	2	0.40		R	3	100%	0	0%	3	0.60	5
S	2	100%	0	0%	2	0.20		S	5	63%	3	38%	8	0.80	10
T	3	100%	0	0%	3	0.75		T	1	100%	0	0%	1	0.25	4
TOTAL	TYPES														123
Average	Path					0.5994		Average	Manner						0.4006
StDev						0.2246		StDev							0.2246

LEVEL 100 LANGUAGE-GROUP RESULTS ENGLISH TYPES

Participants		PATH						Participants		MANNER					TOTAL
	INTR		TRAN						INTR		TRAN				
A	5	0.50	5	0.50	10	0.53		A	4	0.44	5	0.56	9	0.47	19
B	3	0.75	1	0.25	4	0.67		B	0	-	2	1.00	2	0.33	6
C	2	0.67	1	0.33	3	0.43		C	1	0.25	3	0.75	4	0.57	7
D	5	0.83	1	0.17	6	0.46		D	2	0.29	5	0.71	7	0.54	13
E	4	0.80	1	0.20	5	0.29		E	4	0.33	8	0.67	12	0.71	17
F	3	0.75	1	0.25	4	0.33		F	4	0.50	4	0.50	8	0.67	12
G	4	0.67	2	0.33	6	0.40		G	3	0.33	6	0.67	9	0.60	15
H	3	0.75	1	0.25	4	0.57		H	2	0.67	1	0.33	3	0.43	7
I	5	0.63	3	0.38	8	0.62		I	2	0.40	3	0.60	5	0.38	13
J	2	0.67	1	0.33	3	0.38		J	1	0.20	4	0.80	5	0.63	8
K	5	0.71	2	0.29	7	0.50		K	5	0.71	2	0.29	7	0.50	14
L	5	0.71	2	0.29	7	0.44		L	3	0.33	6	0.67	9	0.56	16
M	5	0.63	3	0.38	8	0.50		M	4	0.50	4	0.50	8	0.50	16
N	2	1.00	0	-	2	0.33		N	1	0.25	3	0.75	4	0.67	6
O	3	1.00	0	-	3	0.30		O	4	0.57	3	0.43	7	0.70	10
P	3	1.00	0	-	3	0.43		P	2	0.50	2	0.50	4	0.57	7
Q	2	1.00	0	-	2	0.50		Q	0	-	2	1.00	2	0.50	4
R	3	0.75	1	0.25	4	0.44		R	3	0.60	2	0.40	5	0.56	9
S	3	0.75	1	0.25	4	0.18		S	10	0.56	8	0.44	18	0.82	22
T	5	1.00	0	-	5	0.50		T	2	0.40	3	0.60	5	0.50	10
TOTAL	TYPES														231
Average	Path					0.4399		Average	Manner						0.5601
StDev						0.1166		StDev							0.1166

Appendix 14:

LEVEL 200 LANGUAGE-GROUP RESULTS L2 SPANISH TYPES

Participants		PATH					Participants		MANNER					TOTAL
	INTR		TRAN					INTR		TRAN				
AA	3	1.00	0	-	3	0.38	AA	2	0.40	3	0.60	5	0.63	8
BB	5	0.71	2	0.29	7	0.58	BB	3	0.60	2	0.40	5	0.42	12
CC	2	0.67	1	0.33	3	0.60	CC	1	0.50	1	0.50	2	0.40	5
DD	3	0.75	1	0.25	4	0.57	DD	2	0.67	1	0.33	3	0.43	7
EE	5	0.83	1	0.17	6	0.67	EE	2	0.67	1	0.33	3	0.33	9
FF	6	0.75	2	0.25	8	0.73	FF	2	0.67	1	0.33	3	0.27	11
GG	6	0.86	1	0.14	7	0.78	GG	2	1.00	0	-	2	0.22	9
HH	3	1.00	0	-	3	0.43	HH	3	0.75	1	0.25	4	0.57	7
II	5	0.63	3	0.38	8	0.80	II	0	-	2	1.00	2	0.20	10
JJ	3	0.75	1	0.25	4	0.80	JJ	1	1.00	0	-	1	0.20	5
KK	4	0.67	2	0.33	6	0.50	KK	4	0.67	2	0.33	6	0.50	12
LL	3	1.00	0	-	3	0.75	LL	1	1.00	0	-	1	0.25	4
MM	4	0.80	1	0.20	5	0.71	MM	1	0.50	1	0.50	2	0.29	7
NN	5	0.83	1	0.17	6	0.75	NN	1	0.50	1	0.50	2	0.25	8
OO	6	0.75	2	0.25	8	1.00	OO	0	-	0	-	0	0.00	8
PP	5	1.00	0	-	5	0.50	PP	3	0.60	2	0.40	5	0.50	10
QQ	5	1.00	0	-	5	0.63	QQ	2	0.67	1	0.33	3	0.38	8
RR	6	0.60	4	0.40	10	0.71	RR	2	0.50	2	0.50	4	0.29	14
SS	4	1.00	0	-	4	0.67	SS	1	0.50	1	0.50	2	0.33	6
TT	5	0.71	2	0.29	7	0.88	TT	0	-	1	1.00	1	0.13	8
TOTAL	TYPES													168
Average	Path					0.6713	Average	Manner						0.3287
StDev						0.1528	StDev							0.1491

LEVEL 200 LANGUAGE-GROUP RESULTS ENGLISH TYPES

Participants		PATH					Participants		MANNER					TOTAL
	INTR		TRAN					INTR		TRAN				
AA	2	0.50	2	0.50	4	0.44	AA	2	0.40	3	0.60	5	0.56	9
BB	2	0.67	1	0.33	3	0.18	BB	5	0.36	9	0.64	14	0.82	17
CC	3	0.60	2	0.40	5	0.63	CC	0	-	3	1.00	3	0.38	8
DD	4	0.36	7	0.64	11	0.65	DD	4	0.67	2	0.33	6	0.35	17
EE	4	0.67	2	0.33	6	0.38	EE	3	0.30	7	0.70	10	0.63	16
FF	5	0.63	3	0.38	8	0.35	FF	8	0.53	7	0.47	15	0.65	23
GG	4	0.80	1	0.20	5	0.38	GG	4	0.50	4	0.50	8	0.62	13
HH	6	0.55	5	0.45	11	0.52	HH	6	0.60	4	0.40	10	0.48	21
II	4	0.67	2	0.33	6	0.55	II	1	0.20	4	0.80	5	0.45	11
JJ	6	0.86	1	0.14	7	0.37	JJ	4	0.33	8	0.67	12	0.63	19
KK	3	0.60	2	0.40	5	0.45	KK	2	0.33	4	0.67	6	0.55	11
LL	2	0.50	2	0.50	4	0.33	LL	2	0.25	6	0.75	8	0.67	12
MM	5	0.56	4	0.44	9	0.39	MM	5	0.36	9	0.64	14	0.61	23
NN	5	0.71	2	0.29	7	0.39	NN	5	0.45	6	0.55	11	0.61	18
OO	3	0.50	3	0.50	6	0.30	OO	3	0.21	11	0.79	14	0.70	20
PP	8	0.80	2	0.20	10	0.63	PP	2	0.33	4	0.67	6	0.38	16
QQ	5	0.71	2	0.29	7	0.44	QQ	3	0.33	6	0.67	9	0.56	16
RR	6	0.67	3	0.33	9	0.38	RR	7	0.47	8	0.53	15	0.63	24
SS	4	0.67	2	0.33	6	0.67	SS	1	0.33	2	0.67	3	0.33	9
TT	6	0.67	3	0.33	9	0.39	TT	7	0.50	7	0.50	14	0.61	23
TOTAL	TYPES													336
Average	Path					0.4401	Average	Manner						0.5599
StDev						0.1286	StDev							0.1286

Appendix 15:

LEVEL 300

LANGUAGE-GROUP RESULTS

L2 SPANISH

TYPES

Participants		PATH					Participants		MANNER					TOTAL
	INTR	TRAN						INTR	TRAN					
AAA	7	0.88	1	0.13	8	0.53	AAA	5	0.71	2	0.29	7	0.47	15
BBB	7	0.78	2	0.22	9	0.90	BBB	1	1.00	0	-	1	0.10	10
CCC	4	0.80	1	0.20	5	0.71	CCC	1	0.50	1	0.50	2	0.29	7
DDD	4	1.00	0	-	4	0.40	DDD	4	0.67	2	0.33	6	0.60	10
EEE	5	1.00	0	-	5	0.56	EEE	3	0.75	1	0.25	4	0.44	9
FFF	6	0.86	1	0.14	7	0.64	FFF	3	0.75	1	0.25	4	0.36	11
GGG	7	1.00	0	-	7	0.58	GGG	1	0.20	4	0.80	5	0.42	12
HHH	6	0.86	1	0.14	7	0.54	HHH	3	0.50	3	0.50	6	0.46	13
III	4	0.80	1	0.20	5	0.56	III	4	1.00	0	-	4	0.44	9
JJJ	5	0.83	1	0.17	6	0.60	JJJ	1	0.25	3	0.75	4	0.40	10
KKK	3	0.75	1	0.25	4	0.67	KKK	2	1.00	0	-	2	0.33	6
LLL	6	0.67	3	0.33	9	0.90	LLL	0	-	1	1.00	1	0.10	10
MMM	4	0.80	1	0.20	5	0.71	MMM	2	1.00	0	-	2	0.29	7
NNN	4	0.80	1	0.20	5	0.83	NNN	1	1.00	0	-	1	0.17	6
OOO	3	0.75	1	0.25	4	0.44	OOO	4	0.80	1	0.20	5	0.56	9
PPP	8	0.73	3	0.27	11	0.58	PPP	5	0.63	3	0.38	8	0.42	19
QQQ	5	0.83	1	0.17	6	0.67	QQQ	2	0.67	1	0.33	3	0.33	9
RRR	5	0.71	2	0.29	7	0.54	RRR	4	0.67	2	0.33	6	0.46	13
SSS	10	0.83	2	0.17	12	0.86	SSS	2	1.00	0	-	2	0.14	14
TTT	1	0.50	1	0.50	2	0.50	TTT	1	0.50	1	0.50	2	0.50	4
TOTAL	TYPES						TOTAL							203
Average						0.6358	Average	Manner						0.3642
StDev						0.1455	StDev							0.1458

LEVEL 300

LANGUAGE-GROUP RESULTS

ENGLISH

TYPES

Participants		PATH					Participants		MANNER					TOTAL
	INTR	TRAN						INTR	TRAN					
AAA	5	0.50	5	0.50	10	0.50	AAA	3	0.30	7	0.70	10	0.50	20
BBB	7	0.78	2	0.22	9	0.53	BBB	3	0.38	5	0.63	8	0.47	17
CCC	4	2.00	4	0.50	8	0.67	CCC	1	0.25	3	0.75	4	0.33	12
DDD	5	0.71	2	0.29	7	0.39	DDD	4	0.36	7	0.64	11	0.61	18
EEE	7	0.70	3	0.30	10	0.38	EEE	9	0.56	7	0.44	16	0.62	26
FFF	6	0.50	6	0.50	12	0.44	FFF	9	0.60	6	0.40	15	0.56	27
GGG	5	1.00	0	-	5	0.50	GGG	2	0.40	3	0.60	5	0.50	10
HHH	5	0.83	1	0.17	6	0.33	HHH	8	0.67	4	0.33	12	0.67	18
III	5	1.00	0	-	5	0.45	III	4	0.67	2	0.33	6	0.55	11
JJJ	6	0.86	1	0.14	7	0.41	JJJ	4	0.40	6	0.60	10	0.59	17
KKK	5	0.71	2	0.29	7	0.58	KKK	3	0.60	2	0.40	5	0.42	12
LLL	2	0.40	3	0.60	5	0.71	LLL	1	0.50	1	0.50	2	0.29	7
MMM	2	1.00	0	-	2	0.20	MMM	5	0.63	3	0.38	8	0.80	10
NNN	2	0.50	2	0.50	4	0.44	NNN	2	0.40	3	0.60	5	0.56	9
OOO	4	1.00	0	-	4	0.33	OOO	4	0.50	4	0.50	8	0.67	12
PPP	5	0.63	3	0.38	8	0.35	PPP	6	0.40	9	0.60	15	0.65	23
QQQ	3	1.00	0	-	3	0.50	QQQ	1	0.33	2	0.67	3	0.50	6
RRR	6	0.60	4	0.40	10	0.42	RRR	7	0.50	7	0.50	14	0.58	24
SSS	7	0.70	3	0.30	10	0.53	SSS	6	0.67	3	0.33	9	0.47	19
TTT	5	1.00	0	-	5	0.63	TTT	2	0.67	1	0.33	3	0.38	8
TOTAL							TOTAL							306
Average	Path					0.4652	Average	Manner						0.5348
StDev						0.1238	StDev							0.1238

Appendix 16: Language-group analysis two-way ANOVA table

Analysis of Variance with Language (L1 English and L2 Spanish) as a repeated measure for the comparison of path types

Source	df	F	η	p
Between subjects				
Proficiency (P)	2	.55	.019	.58
S within-group Error	57	(.028)		
Within subjects				
Language (L)	1	55.39*	.493	.001
L x P	2	.78	.026	.47
L x P within-group error	57	(.019)		

Note. Values in parentheses represent mean square errors. S = subjects.

* $p < .001$.

Post Hoc Tests

P

Multiple comparisons

Source		Mean difference	Std. Error	<i>p</i>	95% Confidence interval	
Tukey HSD						
1	2	-.0366	.03745	.593	-.1268	.0535
	3	-.0304	.03745	.697	-.1205	.0597

Appendix 17:

LEVEL 100

LANGUAGE-GROUP RESULTS

L2 SPANISH

TOKENS

Participants	PATH						Participants	MANNER						TOTAL
	INTR		TRAN					INTR		TRAN				
A	16	0.80	4	0.20	20	0.80	A	4	0.16	1	0.04	5	0.20	25
B	7	0.78	2	0.22	9	1.00	B	0	-	0	-	0	-	9
C	3	1.00	0	-	3	0.60	C	1	0.20	1	0.20	2	0.40	5
D	4	0.80	1	0.20	5	0.83	D	1	0.17	0	-	1	0.17	6
E	1	0.25	3	0.75	4	0.50	E	2	0.25	2	0.25	4	0.50	8
F	4	0.67	2	0.33	6	0.75	F	1	0.13	1	0.13	2	0.25	8
G	5	0.83	1	0.17	6	0.75	G	1	0.13	1	0.13	2	0.25	8
H	6	1.00	0	-	6	0.50	H	3	0.25	3	0.25	6	0.50	12
I	4	1.00	0	-	4	0.80	I	0	-	1	0.20	1	0.20	5
J	1	1.00	0	-	1	0.20	J	4	0.80	0	-	4	0.80	5
K	9	0.90	1	0.10	10	0.67	K	4	0.27	1	0.07	5	0.33	15
L	8	0.89	1	0.11	9	0.90	L	0	-	1	0.10	1	0.10	10
M	5	0.83	1	0.17	6	0.67	M	3	0.33	0	-	3	0.33	9
N	3	0.75	1	0.25	4	0.67	N	2	0.33	0	-	2	0.33	6
O	2	1.00	0	-	2	0.25	O	5	0.63	1	0.13	6	0.75	8
P	1	0.50	1	0.50	2	1.00	P	0	-	0	-	0	-	2
Q	1	1.00	0	-	1	0.33	Q	2	0.67	0	-	2	0.67	3
R	2	1.00	0	-	2	0.33	R	4	0.67	0	-	4	0.67	6
S	8	1.00	0	-	8	0.35	S	11	0.48	4	0.17	15	0.65	23
T	5	1.00	0	-	5	0.83	T	1	0.17	0	-	1	0.17	6
TOTAL														179
Average														0.6366
StDev														0.2448

LEVEL 100

LANGUAGE-GROUP RESULTS

ENGLISH

TOKENS

Participants	PATH						Participants	MANNER						TOTAL
	INTR		TRAN					INTR		TRAN				
A	15	0.60	10	0.40	25	0.71	A	5	0.14	5	0.14	10	0.29	35
B	3	0.60	2	0.40	5	0.71	B	0	-	2	0.29	2	0.29	7
C	5	0.83	1	0.17	6	0.55	C	2	0.18	3	0.27	5	0.45	11
D	6	0.86	1	0.14	7	0.47	D	3	0.20	5	0.33	8	0.53	15
E	5	0.71	2	0.29	7	0.35	E	4	0.20	9	0.45	13	0.65	20
F	8	0.89	1	0.11	9	0.45	F	4	0.20	7	0.35	11	0.55	20
G	12	0.86	2	0.14	14	0.56	G	4	0.16	7	0.28	11	0.44	25
H	10	0.83	2	0.17	12	0.75	H	3	0.19	1	0.06	4	0.25	16
I	11	0.69	5	0.31	16	0.73	I	2	0.09	4	0.18	6	0.27	22
J	4	0.80	1	0.20	5	0.42	J	2	0.17	5	0.42	7	0.58	12
K	13	0.81	3	0.19	16	0.59	K	7	0.26	4	0.15	11	0.41	27
L	9	0.82	2	0.18	11	0.55	L	3	0.15	6	0.30	9	0.45	20
M	10	0.77	3	0.23	13	0.62	M	4	0.19	4	0.19	8	0.38	21
N	6	1.00	0	-	6	0.60	N	1	0.10	3	0.30	4	0.40	10
O	8	1.00	0	-	8	0.50	O	4	0.25	4	0.25	8	0.50	16
P	4	1.00	0	-	4	0.50	P	2	0.25	2	0.25	4	0.50	8
Q	5	1.00	0	-	5	0.71	Q	0	-	2	0.29	2	0.29	7
R	7	0.88	1	0.13	8	0.50	R	6	0.38	2	0.13	8	0.50	16
S	10	0.83	2	0.17	12	0.26	S	25	0.54	9	0.20	34	0.74	46
T	8	1.00	0	-	8	0.62	T	2	0.15	3	0.23	5	0.38	13
TOTAL														367
Average														0.5573
StDev														0.1319

Appendix 18:

LEVEL 200 LANGUAGE-GROUP RESULTS L2 SPANISH TOKENS

Participants							Participants							TOTAL	
		PATH								MANNER					
INTR		TRAN						INTR		TRAN					
AA	6	1.00	0	-	6	0.43		AA	5	0.36	3	0.21	8	0.57	14
BB	11	0.85	2	0.15	13	0.72		BB	3	0.17	2	0.11	5	0.28	18
CC	6	0.86	1	0.14	7	0.78		CC	1	0.11	1	0.11	2	0.22	9
DD	3	0.75	1	0.25	4	0.57		DD	2	0.29	1	0.14	3	0.43	7
EE	9	0.90	1	0.10	10	0.77		EE	2	0.15	1	0.08	3	0.23	13
FF	11	0.73	4	0.27	15	0.58		FF	10	0.38	1	0.04	11	0.42	26
GG	13	0.93	1	0.07	14	0.78		GG	4	0.22	0	-	4	0.22	18
HH	3	1.00	0	-	3	0.30		HH	6	0.60	1	0.10	7	0.70	10
II	21	0.84	4	0.16	25	0.89		II	0	-	3	0.11	3	0.11	28
JJ	6	0.86	1	0.14	7	0.88		JJ	1	0.13	0	-	1	0.13	8
KK	5	0.71	2	0.29	7	0.54		KK	4	0.31	2	0.15	6	0.46	13
LL	5	1.00	0	-	5	0.83		LL	1	0.17	0	-	1	0.17	6
MM	14	0.93	1	0.07	15	0.88		MM	1	0.06	1	0.06	2	0.12	17
NN	14	0.93	1	0.07	15	0.88		NN	1	0.06	1	0.06	2	0.12	17
OO	11	0.85	2	0.15	13	1.00		OO	0	-	0	-	0	-	13
PP	16	1.00	0	-	16	0.70		PP	3	0.13	4	0.17	7	0.30	23
QQ	9	1.00	0	-	9	0.53		QQ	7	0.41	1	0.06	8	0.47	17
RR	14	0.67	7	0.33	21	0.72		RR	6	0.21	2	0.07	8	0.28	29
SS	4	1.00	0	-	4	0.57		SS	1	0.14	2	0.29	3	0.43	7
TT	12	0.86	2	0.14	14	0.93		TT	0	-	1	0.07	1	0.07	15
TOTAL		TYPES												308	
Average	Path					0.7141		Average	Manner					0.2859	
StDev						0.1846		StDev						0.1846	

LEVEL 200 LANGUAGE-GROUP RESULTS ENGLISH TOKENS

Participants							Participants							TOTAL	
		PATH							MANNER						
INTR		TRAN							INTR		TRAN				
AA	10	0.71	4	0.29	14	0.56	AA	5	0.45	6	0.55	11	0.44	25	
BB	17	0.89	2	0.11	19	0.50	BB	6	0.32	13	0.68	19	0.50	38	
CC	18	0.62	11	0.38	29	0.81	CC	5	0.71	2	0.29	7	0.19	36	
DD	11	0.79	3	0.21	14	0.50	DD	5	0.36	9	0.64	14	0.50	28	
EE	12	0.75	4	0.25	16	0.42	EE	11	0.50	11	0.50	22	0.58	38	
FF	9	0.90	1	0.10	10	0.53	FF	5	0.56	4	0.44	9	0.47	19	
GG	7	0.54	6	0.46	13	0.52	GG	7	0.58	5	0.42	12	0.48	25	
HH	18	0.90	2	0.10	20	0.77	HH	1	0.17	5	0.83	6	0.23	26	
II	12	0.92	1	0.08	13	0.48	II	5	0.36	9	0.64	14	0.52	27	
JJ	7	0.64	4	0.36	11	0.61	JJ	3	0.43	4	0.57	7	0.39	18	
KK	9	0.82	2	0.18	11	0.58	KK	2	0.25	6	0.75	8	0.42	19	
LL	21	0.68	10	0.32	31	0.62	LL	7	0.37	12	0.63	19	0.38	50	
MM	23	0.82	5	0.18	28	0.65	MM	8	0.53	7	0.47	15	0.35	43	
NN	10	0.71	4	0.29	14	0.45	NN	4	0.24	13	0.76	17	0.55	31	
OO	17	0.89	2	0.11	19	0.66	OO	3	0.30	7	0.70	10	0.34	29	
PP	17	0.89	2	0.11	19	0.66	PP	3	0.30	7	0.70	10	0.34	29	
QQ	22	0.85	4	0.15	26	0.57	QQ	10	0.50	10	0.50	20	0.43	46	
RR	8	0.73	3	0.27	11	0.79	RR	1	0.33	2	0.67	3	0.21	14	
SS	22	0.85	4	0.15	26	0.62	SS	8	0.50	8	0.50	16	0.38	42	
TT							TT								
TOTAL		TYPES												583	
Average	Path				0.5935		Average	Manner					0.4065		
StDev					0.1099		StDev						0.1099		

Appendix 19:

LEVEL 300 LANGUAGE-GROUP RESULTS L2 SPANISH TOKENS

Participants							Participants							TOTAL	
	INTR	PATH						INTR	MANNER						
			TRAN							TRAN					
AAA	23	0.96	1	0.04	24	0.77		AAA	5	0.16	2	0.06	7	0.23	31
BBB	11	0.85	2	0.15	13	0.93		BBB	1	0.07	0	-	1	0.07	14
CCC	8	0.89	1	0.11	9	0.82		CCC	1	0.09	1	0.09	2	0.18	11
DDD	8	1.00	0	-	8	0.50		DDD	6	0.38	2	0.13	8	0.50	16
EEE	9	1.00	0	-	9	0.64		EEE	3	0.21	2	0.14	5	0.36	14
FFF	21	0.91	2	0.09	23	0.82		FFF	4	0.14	1	0.04	5	0.18	28
GGG	10	1.00	0	-	10	0.63		GGG	1	0.06	5	0.31	6	0.38	16
HHH	13	0.93	1	0.07	14	0.56		HHH	4	0.16	7	0.28	11	0.44	25
III	5	0.83	1	0.17	6	0.55		III	5	0.45	0	-	5	0.45	11
JJJ	8	0.89	1	0.11	9	0.69		JJJ	1	0.08	3	0.23	4	0.31	13
KKK	7	0.88	1	0.13	8	0.73		KKK	3	0.27	0	-	3	0.27	11
LLL	11	0.79	3	0.21	14	0.93		LLL	0	-	1	0.07	1	0.07	15
MMM	8	0.89	1	0.11	9	0.69		MMM	4	0.31	0	-	4	0.31	13
NNN	8	0.89	1	0.11	9	0.90		NNN	1	0.10	0	-	1	0.10	10
OOO	5	0.83	1	0.17	6	0.35		OOO	10	0.59	1	0.06	11	0.65	17
PPP	21	0.81	5	0.19	26	0.68		PPP	7	0.18	5	0.13	12	0.32	38
QQQ	6	0.86	1	0.14	7	0.54		QQQ	5	0.38	1	0.08	6	0.46	13
RRR	12	0.86	2	0.14	14	0.67		RRR	5	0.24	2	0.10	7	0.33	21
SSS	20	0.91	2	0.09	22	0.88		SSS	3	0.12	0	-	3	0.12	25
TTT	1	0.50	1	0.50	2	0.40		TTT	2	0.40	1	0.20	3	0.60	5
TOTAL	TYPES														347
Average	Path					0.6842		Average	Manner						0.3158
StDev						0.1685		StDev							0.1685

LEVEL 300 LANGUAGE-GROUP RESULTS ENGLISH TOKENS

Participants							Participants							TOTAL	
	INTR	PATH						INTR	MANNER						
			TRAN							TRAN					
AAA	25	0.78	7	0.22	32	0.70		AAA	4	0.09	10	0.22	14	0.30	46
BBB	16	1.00		-	16	0.55		BBB	6	0.21	7	0.24	13	0.45	29
CCC	9	0.64	5	0.36	14	0.78		CCC	1	0.06	3	0.17	4	0.22	18
DDD	11	0.85	2	0.15	13	0.52		DDD	5	0.20	7	0.28	12	0.48	25
EEE	27	0.90	3	0.10	30	0.52		EEE	19	0.33	9	0.16	28	0.48	58
FFF	24	0.71	10	0.29	34	0.59		FFF	17	0.29	7	0.12	24	0.41	58
GGG	9	1.00	0	-	9	0.56		GGG	4	0.25	3	0.19	7	0.44	16
HHH	24	0.86	4	0.14	28	0.61		HHH	12	0.26	6	0.13	18	0.39	46
III	7	1.00	0	-	7	0.50		III	4	0.29	3	0.21	7	0.50	14
JJJ	12	0.92	1	0.08	13	0.52		JJJ	4	0.16	8	0.32	12	0.48	25
KKK	7	0.78	2	0.22	9	0.53		KKK	6	0.35	2	0.12	8	0.47	17
LLL	8	0.62	5	0.38	13	0.81		LLL	1	0.06	2	0.13	3	0.19	16
MMM	4	1.00	0	-	4	0.33		MMM	5	0.42	3	0.25	8	0.67	12
NNN	7	0.78	2	0.22	9	0.53		NNN	2	0.12	6	0.35	8	0.47	17
OOO	6	1.00	0	-	6	0.32		OOO	7	0.37	6	0.32	13	0.68	19
PPP	27	0.71	11	0.29	38	0.62		PPP	9	0.15	14	0.23	23	0.38	61
QQQ	7	1.00	0	-	7	0.70		QQQ	1	0.10	2	0.20	3	0.30	10
RRR	21	0.81	5	0.19	26	0.59		RRR	11	0.25	7	0.16	18	0.41	44
SSS	13	0.81	3	0.19	16	0.62		SSS	6	0.23	4	0.15	10	0.38	26
TTT	8	1.00	0	-	8	0.67		TTT	2	0.17	2	0.17	4	0.33	12
TOTAL	TYPES														569
Average	Path					0.5778	Average	Manner							0.4222
StDev						0.1229	StDev								0.1229

Appendix 20:

Language-group analysis two-way ANOVA table

Analysis of Variance with Language (L1 English and L2 Spanish) as a repeated measure for the comparison of path tokens

Source	df	F	η	p
Between subjects				
Proficiency (P)	2	1.110	.037	.34
S within-group Error	57	(.034)		
Within subjects				
Language (L)	1	13.37*	.190	.001
L x P	2	.14	.005	.87
L x P within-group error	57	(.022)		

Note. Values in parentheses represent mean square errors. S = subjects.

* $p < .001$.

Post Hoc Tests

P

Multiple comparisons

Source		Mean difference	Std. Error	<i>p</i>	95% Confidence interval	
Tukey HSD						
1	2	-.0613	.04121	.305	-.1604	.0379
	3	-.0343	.04121	.685	-.1334	.0649

Appendix 21 (1):

L2 SPANISH CORPUS

LEVEL 100

PATH VERBS

INTRANSITIVE

	Types	Tokens	# Speakers
arrancar 'set off'	1	1	1
caerse 'fall down'	1	6	6
descender 'descend'	1	2	2
detenerse 'stop'	1	1	1
devolverse 'go back'	1	4	2
entrar 'enter'	1	12	7
escapar 'escape'	1	1	1
golpear 'hit'	1	1	1
ir 'go'	1	25	11
llegar 'arrive'	1	1	1
meterse 'get into'	1	1	1
pasar 'go by'	1	1	1
regresar 'return'	1	4	1
retornar 'return'	1	4	2
salir 'exit'	1	8	6
subirse 'go up'	1	1	1
venir 'come'	1	1	1
volver 'come back'	1	21	10
	18	95	

TRANSITIVE

	Types	Tokens	# Speakers
cubrir 'cover'	1	1	1
dejar 'leave'	1	1	1
echar 'throw'	1	1	1
mover 'move'	1	2	2
poner 'put'	1	9	6
sacar 'take out'	1	1	1
tomar 'take'	1	1	1
traer 'bring'	1	2	2
	8	18	

MANNER VERBS

INTRANSITIVE

	Types	Tokens	# Speakers
agarrarse 'hold on'	1	1	1
aterrizar 'land'	1	3	3
caminar 'walk'	1	11	9
correr 'run'	1	4	3
despegar 'take off'	1	3	3
nadar 'swim'	1	9	7
remar 'row'	1	1	1
saltar 'jump'	1	1	1
volar 'fly'	1	16	10
	9	49	

TRANSITIVE

	Types	Tokens	# Speakers
amarrar 'tie'	1	1	1
apretar 'press'	1	2	2
lanzar 'throw'	1	6	4
presionar 'press'	1	2	2
tirar 'throw'	1	5	5
tocar 'touch'	1	1	1
	6	17	

Path Types	26	63%	Path Tokens	113	63%
Manner Types	15	37%	Manner Tokens	66	37%
TOTAL	41	100%	TOTAL	179	100%

Appendix 21 (2):

ENGLISH CORPUS

LEVEL 100

PATH VERBS

INTRANSITIVE

	Types	Tokens	# Speakers
close	1	1	1
come	1	23	12
cruise	1	1	1
eject	1	2	2
escape	1	3	3
fall	1	13	10
get	1	12	7
go	1	81	20
open	1	3	3
return	1	5	3
stop	1	2	2
take off	1	9	7
turn	1	4	1
	13	159	

TRANSITIVE

	Types	Tokens	# Speakers
board	1	4	1
bring	1	3	1
enter	1	3	1
open	1	4	3
plug	1	2	1
put	1	9	3
shut	1	2	1
take	1	12	10
tap	1	2	1
tie	1	6	4
	10	47	

MANNER VERBS

INTRANSITIVE

	Types	Tokens	# Speakers
circle	1	2	1
dive	1	4	4
float	1	1	1
fly	1	22	10
jump	1	6	4
knock	1	2	2
land	1	3	3
pop	1	1	1
run	1	9	5
sink	1	1	1
scale	1	1	1
shoot	1	1	1
snap	1	1	1
sneak	1	1	1
swim	1	7	7
turn	1	2	2
walk	1	18	9
zoom	1	1	1
	18	83	

TRANSITIVE

	Types	Tokens	# Speakers
break	1	2	2
chase	1	3	3
cork	1	1	1
cut	1	5	6
destroy	1	1	1
drag	1	2	3
drop	1	2	4
dump	1	1	1
eject	1	1	1
flap	1	1	1
flick	1	1	1
hit	1	13	9
kick	1	1	1
leave	1	2	1
nail	1	2	2
paddle	1	1	2
pat	1	1	1
press	1	3	4
pull	1	3	2
shack	1	1	1
shake	1	2	2
shovel	1	1	1
smash	1	5	5
string up	1	1	1
throw	1	20	17
toss	1	1	1
wreck	1	1	1
	27	78	

Path Types	23	34%
Manner Types	45	66%
TOTAL	68	100%

Path Tokens	206	56%
Manner Tokens	161	44%
TOTAL	367	100%

Appendix 22 (1):

L2 SPANISH CORPUS

LEVEL 200

PATH VERBS

INTRANSITIVE

andar 'walk'
arrancar 'set off'
caerse 'fall down'
entrar 'enter'
escaparse 'escape'
golpear 'hit'
ir 'go'
llegar 'arrive'
pasar 'go by'
regresar 'return'
retomar 'go back'
salir 'exit'
subir 'go up'
venir 'come'
viajar 'travel'
volver 'come back'

Types	Tokens	# Speakers
1	1	1
1	1	1
1	19	14
1	18	12
1	8	5
1	3	3
1	65	19
1	2	1
1	2	2
1	24	8
1	9	4
1	15	10
1	2	1
1	1	1
1	1	1
1	17	7

16 188

TRANSITIVE

cubrir 'cover'
echar 'throw'
llevar 'carry'
pegar 'hit'
poner 'put'
sacar 'take out'
tomar 'take'
traer 'bring'

Types	Tokens	# Speakers
1	1	1
1	1	1
1	2	2
1	7	4
1	6	5
1	2	2
1	9	7
1	2	2

8 30

MANNER VERBS

INTRANSITIVE

caminar 'walk'
correr 'run'
despegar 'take off'
lanzarse 'leap into'
marcharse 'leave'
nadar 'swim'
perseguir 'chase'
saltar 'jump'
volar 'fly'

Types	Tokens	# Speakers
1	13	5
1	10	7
1	4	4
1	1	1
1	1	1
1	2	2
1	1	1
1	3	3
1	17	8

9 52

TRANSITIVE

abrir 'open'
agarrar 'grab'
amarrar 'tie'
atar 'lace up'
bloquear 'block'
botar 'dump'
lanzar 'throw'
presionar 'press'
tapar 'plug'
tirar 'throw'

Types	Tokens	# Speakers
1	4	2
1	3	1
1	4	4
1	3	2
1	2	1
1	4	2
1	3	3
1	5	5
1	3	2
1	7	5

10 38

Path Types 24 56%
Manner Types 19 44%
TOTAL 43 100%

Path Tokens 218 71%
Manner Tokens 90 29%
TOTAL 308 100%

Appendix 22 (2):

ENGLISH CORPUS

LEVEL 200

PATH VERBS

INTRANSITIVE

	Types	Tokens	# Speakers
catch up	1	3	2
come	1	47	17
eject	1	3	3
enter	1	1	1
escape	1	8	6
fall	1	11	9
get	1	20	14
go	1	163	20
head	1	1	1
move	1	1	1
pass	1	1	1
return	1	1	1
stop	1	1	1
take off	1	9	8
turn	1	7	4
	15	277	

TRANSITIVE

	Types	Tokens	# Speakers
board	1	2	2
block	1	1	2
bring	1	1	1
close	1	1	2
follow	1	2	3
open	1	1	2
pick	1	1	1
plug	1	1	1
put	1	14	6
release	1	2	1
set	1	1	1
shut	1	1	1
take	1	30	18
tap	1	1	1
tie	1	10	7
	15	69	

MANNER VERBS

INTRANSITIVE

	Types	Tokens	# Speakers
climb	1	3	3
dive	1	3	3
drive	1	1	1
float	1	1	1
fly	1	23	13
hop	1	1	1
jump	1	9	6
knock	1	4	4
land	1	4	4
paddle	1	2	2
pop	1	2	1
row	1	1	1
run	1	10	7
shoot	1	5	4
sink	1	1	1
spin	1	1	1
stomp	1	1	1
swim	1	6	6
turn	1	2	2
twirl	1	1	1
walk	1	17	10
	21	98	

TRANSITIVE

	Types	Tokens	# Speakers
break	1	4	4
carry	1	4	4
chase	1	12	7
crash	1	1	1
cut	1	9	9
destroy	1	2	2
drag	1	8	7
drop	1	9	8
eject	1	1	1
flap	1	2	2
flick	1	1	1
grab	1	6	6
hit	1	13	9
kick	1	1	1
leave	1	2	3
nail	1	5	6
pat	1	2	3
poke	1	1	1
press	1	2	2
pull	1	6	4
rip	1	1	1
saw	1	5	5
scoop	1	1	1
shake	1	1	1
smash	1	17	13
snip	1	1	1
throw	1	19	14
toss	1	2	1
wack	1	1	1
	29	139	

Path Types	30	37%
Manner Types	50	63%
TOTAL	80	100%

Path Tokens	346	59%
Manner Tokens	237	41%
TOTAL	583	100%

Appendix 23 (1):

L2 SPANISH CORPUS

LEVEL 300

PATH VERBS

INTRANSITIVE

	Types	Tokens	# Speakers
andar 'walk'	1	2	2
bajar 'go down'	1	4	3
caerse 'fall down'	1	11	8
cruzar 'cross'	1	1	1
descender 'descend'	1	1	1
devolverse 'go back'	1	1	1
entrar 'enter'	1	18	10
escaparse 'escape'	1	4	3
ir 'go'	1	50	15
llegar 'arrive'	1	3	3
meterse 'get into'	1	2	2
pararse 'stop'	1	1	1
pasar 'go by'	1	10	7
regresar 'return'	1	33	15
retornar 'return'	1	3	2
salir 'exit'	1	40	14
subir 'go up'	1	11	7
venir 'come'	1	11	6
volver 'come back'	1	7	3
	19	213	

TRANSITIVE

	Types	Tokens	# Speakers
echar 'throw'	1	3	3
llevar 'carry'	1	10	10
meter 'put in'	1	1	1
poner 'put'	1	6	6
sacar 'take out'	1	2	2
tomar 'take'	1	2	2
	6	24	

MANNER VERBS

INTRANSITIVE

	Types	Tokens	# Speakers
abrirse 'open'	1	3	3
aterrizar 'land'	1	1	1
caminar 'walk'	1	14	9
correr 'run'	1	7	5
despegar 'take off'	1	1	1
eyectar 'eject'	1	1	1
girar 'turn around'	1	1	1
lanzarse 'leap into'	1	4	3
nadar 'swim'	1	6	5
saltar 'jump'	1	3	3
tirarse 'throw oneself'	1	1	1
volar 'fly'	1	27	16
	12	69	

TRANSITIVE

	Types	Tokens	# Speakers
abrir 'open'	1	2	1
agarrar 'grab'	1	4	2
apretar 'press'	1	1	1
arrojar 'throw'	1	1	1
botar 'dump'	1	3	1
cerrar 'close'	1	2	2
clavar 'nail'	1	1	1
lanzar 'throw'	1	6	5
oprimir 'squeeze'	1	2	1
pulsar 'push'	1	3	1
remar 'row'	1	2	1
tirar 'throw'	1	10	7
tocar 'touch'	1	4	2
	13	41	

Path Types	25	50%
Manner Types	25	50%
TOTAL	50	100%

Path Tokens	237	68%
Manner Tokens	110	32%
TOTAL	347	100%

Appendix 23 (2):

ENGLISH CORPUS

LEVEL 300

PATH VERBS

INTRANSITIVE

	Types	Tokens	# Speakers
arrive	1	1	1
catch	1	1	1
catch up	1	1	1
come	1	54	15
eject	1	2	2
escape	1	2	2
exit	1	2	1
fall	1	15	11
get	1	25	14
get up	1	1	1
go	1	135	20
move	1	1	1
open	1	2	2
pass	1	1	1
return	1	4	2
stop	1	3	3
take off	1	14	14
travel	1	1	1
turn	1	5	4
	19	270	

TRANSITIVE

	Types	Tokens	# Speakers
block	1	1	1
board	1	1	1
close	1	1	1
enter	1	2	1
follow	1	1	1
open	1	2	2
pick	1	1	1
plug	1	1	1
put	1	18	9
ride	1	1	1
shut	1	2	2
stuff	1	1	1
take	1	21	11
tap	1	3	3
tie	1	6	4
	15	62	

MANNER VERBS

INTRANSITIVE

	Types	Tokens	# Speakers
chase	1	4	3
climb	1	1	1
crawl	1	1	1
dive	1	5	5
drive	1	1	1
float	1	2	1
fly	1	40	16
hop	1	1	1
jump	1	12	7
knock	1	2	2
land	1	5	4
loop	1	2	2
paddle	1	2	2
pop	1	4	2
row	1	1	1
run	1	10	9
rush	1	1	1
scoop	1	1	1
shoot	1	1	1
sneak	1	2	2
spin	1	1	1
stomp	1	1	1
swim	1	8	6
toss	1	1	1
turn	1	1	1
walk	1	15	10
zip	1	1	1
zoom	1	1	1
	28	127	

TRANSITIVE

	Types	Tokens	# Speakers
carry	1	1	1
chuck	1	1	1
clip	1	1	1
cork	1	1	1
crash	1	1	1
cut	1	4	4
destroy	1	1	1
drag	1	4	4
drop	1	10	7
flap	1	1	1
grab	1	6	4
hit	1	10	7
kick	1	1	1
leave	1	5	3
nail	1	4	4
pat	1	2	2
press	1	10	7
pull	1	4	3
rip	1	1	1
saw	1	2	2
slam	1	1	1
smack	1	1	1
smash	1	9	7
snip	1	1	1
throw	1	26	18
wave	1	1	1
wreck	1	1	1
	27	110	

Path Types	34	38%
Manner Types	55	62%
TOTAL	89	100%

Path Tokens	332	58%
Manner Tokens	237	42%
TOTAL	569	100%

Appendix 24:

L1 SPANISH LANGUAGE-GROUP RESULTS TYPES

Participants						Participants						MANNER						TOTAL	
INTR		PATH				INTR		TRAN				INTR		TRAN					
AAAA	9	0.69	4	0.31	13	0.54	AAAA	6	0.55	5	0.45	11	0.46	24					
BBBB	5	0.71	2	0.29	7	0.64	BBBB	2	0.50	2	0.50	4	0.36	11					
CCCC	9	1.00	0	-	9	0.43	CCCC	4	0.33	8	0.67	12	0.57	21					
DDDD	6	0.67	3	0.33	9	0.41	DDDD	7	0.54	6	0.46	13	0.59	22					
EEEE	7	0.78	2	0.22	9	0.56	EEEE	1	0.14	6	0.86	7	0.44	16					
FFFF	14	0.82	3	0.18	17	0.59	FFFF	6	0.50	6	0.50	12	0.41	29					
GGGG	11	0.79	3	0.21	14	0.58	GGGG	2	0.20	8	0.80	10	0.42	24					
HHHH	8	0.67	4	0.33	12	0.55	HHHH	4	0.40	6	0.60	10	0.45	22					
IIII	10	0.83	2	0.17	12	0.71	IIII	2	0.40	3	0.60	5	0.29	17					
JJJJ	3	0.60	2	0.40	5	0.63	JJJJ	2	0.67	1	0.33	3	0.38	8					
KKKK	4	0.57	3	0.43	7	0.47	KKKK	4	0.50	4	0.50	8	0.53	15					
LLLL	6	1.00	0	-	6	0.55	LLLL	0	-	5	1.00	5	0.45	11					
MMMM	10	0.83	2	0.17	12	0.63	MMMM	1	0.14	6	0.86	7	0.37	19					
NNNN	7	0.78	2	0.22	9	0.56	NNNN	3	0.43	4	0.57	7	0.44	16					
OOOO	9	0.75	3	0.25	12	0.57	OOOO	5	0.56	4	0.44	9	0.43	21					
PPPP	10	0.77	3	0.23	13	0.45	PPPP	7	0.44	9	0.56	16	0.55	29					
QQQQ	9	0.75	3	0.25	12	0.52	QQQQ	5	0.45	6	0.55	11	0.48	23					
RRRR	8	0.89	1	0.11	9	0.64	RRRR	2	0.40	3	0.60	5	0.36	14					
SSSS	6	0.75	2	0.25	8	0.57	SSSS	3	0.50	3	0.50	6	0.43	14					
TTTT	6	1.00	0	-	6	1.00	TTTT	0	-	0	-	0	0.00	6					
																		362	
TOTAL	TYPES																		
Average	Path						0.5793		Average		Manner						0.4207		
StDev							0.1245		StDev								0.1245		

Appendix 25: Language-group analysis one-way ANOVA table

Analysis of Variance for the comparison of path verb types in L2 and L1 Spanish

Source	df	<i>MS</i>	<i>SS</i>	<i>F</i>	<i>p</i>
Between subjects					
Language (L)	3	.033	.099	1.20	.32
Within subjects					
	76	.028	2.099		

Post Hoc Tests

P

Multiple comparisons

Source	Mean difference	Std. Error	<i>p</i>	95% Confidence interval
Tukey HSD				
2 1	.07250	.05255	.516	-.0655 .2105
3	.03600	.05255	.902	-.1020 .1740
4	.09200	.05255	.305	-.0460 .2300

Appendix 26: Language-group analysis one-way ANOVA table

Analysis of Variance for the comparison of path verb tokens in L2 and L1 Spanish

Source	df	MS	SS	F	p
Between subjects					
Language (L)	3	.022	.067	.66	.58
Within subjects					
	76	.034	2.605		

Post Hoc Tests
P

Multiple comparisons

Source	Mean difference	Std. Error	p	95% Confidence interval
Tukey HSD				
2 1	.07750	.05855	.551	-.0763 .2313
3	.03000	.05855	.956	-.1238 .1838
4	.05650	.05855	.770	-.0973 .2103

Appendix 27 (1):

L1 SPANISH CORPUS

PATH VERBS

INTRANSITIVE

Types Tokens # Speakers

acercarse 'get closer'
alejarse 'move away'
andar 'walk'
apartarse 'get away'
arrancarse 'run away'
bajarse 'get down'
caerse 'fall down'
devolverse 'go back'
entrar 'enter'
escaparse 'escape'
ir 'go'
llegar 'arrive'
meterse 'get into'
moverse 'move'
pasar 'go by'
regresar 'return'
salir 'exit'
subir 'go up'
venir 'come'
viajar 'travel'
volver 'come back'

1	2	2
1	2	2
1	1	1
1	1	1
1	3	3
1	8	6
1	18	14
1	10	5
1	8	6
1	6	6
1	69	18
1	20	14
1	17	12
1	2	2
1	17	10
1	42	15
1	80	18
1	20	14
1	10	9
1	1	1
1	10	6

21 347

TRANSITIVE

Types Tokens # Speakers

bajar 'take sth down'
coger 'take'
levantar 'lift'
llevar 'carry'
meter 'put sth into'
poner 'put'
sacar 'take out'
tomar 'take'
traer 'bring'

1	3	2
1	5	3
1	2	1
1	19	14
1	7	6
1	12	8
1	8	5
1	4	3
1	5	3

9 65

Appendix 27 (2):

L1 Spanish Corpus

MANNER VERBS

INTRANSITIVE

Types Tokens # Speakers

abrirse 'open'	1	9	5
agarrarse 'hold on'	1	3	2
aterrizar 'land'	1	6	4
aventarse 'throw oneself'	1	3	2
botarse 'leap into'	1	1	1
caminar 'walk'	1	6	5
cerrar 'close'	1	2	1
correr 'run'	1	5	5
despegar 'take off'	1	9	7
flotar 'float'	1	1	1
levantarse 'get up'	1	2	2
nadar 'swim'	1	6	6
perseguirse 'chase oneself'	1	1	1
remar 'row'	1	5	4
saltar 'jump'	1	1	1
sellar 'seal'	1	1	1
taponar 'block'	1	1	1
tirarse 'throw oneself'	1	4	4
volar 'fly'	1	5	5
voltearse 'turn around'	1	5	5

20 76

TRANSITIVE

Types Tokens # Speakers

abrir 'open'	1	5	5
agarrar 'grab'	1	33	15
amarrar 'tie'	1	9	7
apretar 'press'	1	12	6
arrastrar 'drag'	1	2	2
aserruchar 'saw'	1	1	1
aventar 'throw'	1	8	4
bloquear 'block up'	1	1	1
botar 'throw'	1	3	3
clavar 'nail'	1	2	2
cortar 'cut'	1	3	3
destornillar 'unscrew'	1	1	1
empujar 'push'	1	1	1
expulsar 'expell'	1	1	1
jalar 'pull'	1	1	1
lanzar 'throw'	1	2	2
martillar 'hammer'	1	1	1
oprimir 'squeeze'	1	2	2
pegar 'hit'	1	5	4
perseguir 'chase'	1	3	3
romper 'smash'	1	3	3
sacudir 'shake'	1	1	1
tapar 'plug'	1	9	8
tirar 'throw'	1	22	12
tocar 'touch'	1	11	9

25 142

Path Types	30	40%
Manner Types	45	60%
TOTAL	75	100%

Path Tokens	412	65%
Manner Tokens	218	35%
TOTAL	630	100%